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Central Safety and Health Committee Folder (meeting minutes)

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Sanitized Version of
CENTRAL SAFETY AND
HEALTH COMMITTEE

Carbide and Carbon Chemicals Corporation Operating
Contractor for the U.S. Atomic Energy Commission.

This document has been approved for release
to the public by:

[Signature]
Technical Information Officer
Oak Ridge K-25 Site

6/11/75
Date

CENTRAL SAFETY AND HEALTH COMMITTEE

A C T I V I T I E S

I. Central Safety and Health Committee

- | | |
|---------------------------|----------|
| A. Functions of | 1/25/49 |
| B. Meeting date | 1/25/49 |
| C. Agenda | 12/21/48 |

II. Safety Committee Organization

- | | |
|--|-------------------|
| A. Central Safety, Divisional meetings, etc. | 8/24/48; 12/21/48 |
|--|-------------------|

III. Company-Union Safety Committee

- | | |
|---|--|
| A. Organization, Meetings, etc. | 3/24/48; 4/20/48;
5/10/48; 11/23/48;
8/16/49 |
|---|--|

IV. Injuries

- | | |
|---|-------------------|
| A. Reporting procedure (proposed) | 6/22/48 |
| B. Reporting procedures | 7/20/48 |
| C. Accident chargeability | 5/25/48 |
| D. Injury reporting | 9/30/48 |
| E. Make-up pay | 9/30/48 |
| F. Assignment of Responsibility | 11/2/48; 11/23/48 |
| G. Injuries involving radioactive materials | 1/25/49 |
| H. Job Placement | 2/15/49; 4/12/49 |
| I. Dispensary visits (pay policy) | 1/20/48; 12/23/47 |
| J. Medical restrictions | 11/23/48 |

V. Radiation Hazards

- | | |
|--|----------------------------|
| A. Spills of radioactive materials | 11/2/48; 3/24/48 |
| B. Contaminated personal clothing, and replacement
of contaminated clothing | 1/25/49; 5/25/48 |
| C. Over-tolerance film badge and pocket chambers | 1/25/49 |
| D. Over-tolerance hand counts | 1/25/49 |
| E. Over-tolerance hand and body contamination | 3/8/49 |
| F. Identification of Radiation Hazards | 1/25/49; 2/15/49
3/8/49 |
| G. Radiation Exposure due to X-Rays | 3/8/49; 8/16/49
7/12/49 |
| H. Information on Radiation Exposures | 3/8/49 |
| I. Hand Decontamination | 4/12/49; 5/10/49 |
| J. Radiation Monitoring at Tool Cribs | 6/14/49 |
| K. Calculated Risk Policy | 7/12/49 |
| L. Plant Tolerances for Radiation Exposures | 7/12/49 |
| M. Water treatment to reduce beta activity | 5/10/49; 7/12/49 |

VI. Electrical

- | | |
|--|----------|
| A. Test and Inspection of Corded Electrical
Equipment | 12/23/47 |
| B. Electrical Hazards (Plant) | 1/20/48 |
| C. Electrical Tool Test Panel | 9/20/49 |

Carbide and Carbon Chemicals Corporation Operating
Contractor for the U.S. Atomic Energy Commission.

VII. Protective Equipment

- A. Cost factors on equipment usage 10/18/49
- B. Charges against Using Department 6/12/49
- C. SPP on Control and Issuance 2/24/48
- D. Usage Reports 9/20/48; 10/18/49
- E. Types of Equipment
 - 1. Coveralls (versus uniforms) 9/20/49
 - 2. Gloves 5/10/49
 - a. Report of work glove usage 4/12/49
 - b. Control of work glove usage 5/10/49
 - c. Review of protective equipment(gloves) . . . 12/23/47
 - 3. Impermeable Suits 3/8/49; 4/12/49
 - 4. Safety Spectacles 3/24/48; 6/22/48
11/2/48
 - a. Enforcement of use 5/10/49
 - b. Proposed policy for issuance 7/12/49
 - c. SPP No. 360, Safety Spectacles 8/16/49
 - 5. Safety Shoes 3/24/48; 2/24/48
1/20/48; 6/22/48

VIII. SAFETY AWARDS

- A. Safety Award Plan 4/20/48; 5/25/48
6/22/48; 7/20/48
3/8/49
- B. Safety Award Distribution ('48) 11/2/48; 11/23/48
- C. Safety Awards (selection of '49 awards) 7/12/49
- D. Safety Awards, UCC 8/16/49; 9/20/49

IX. Rescue and Emergency Squad Training

- A. Rescue Training 4/20/48; 5/25/48
6/22/48; 7/20/48
9/30/48; 3/8/49
4/12/49
- B. Emergency Stations 3/8/49
- C. Emergency Vehicle right-of-way 3/8/49
- D. Emergency Plans 6/12/49; 11/23/48
- E. Emergency Passes 2/15/49; 1/25/49
11/2/48
- F. Disaster Plan 6/22/48; 7/20/48

X. TRAFFIC

- A. Traffic Problems, K-25 Plant Area 8/16/49; 9/20/49
- B. Traffic Control, K-25 Plant Exits 9/20/49
- C. Traffic Safety, Oak Ridge Area 4/12/49

XI. Plant Safety Lane

- A. Discontinuance of 4/12/49
- B. Semi-annual motor vehicle inspection, AEC 10/16/49

VII. General

- A. Spring Clean-up Campaign 5/10/49
- B. Locker Inspections 5/10/49
- C. Portable Ladders 6/14/49
- D. Vacuum Pump Guards 11/23/48; 4/12/49
- E. Treatment of Re-Circulating Water 8/16/49; 7/12/49
6/14/49
- F. Hazardous Wastes Disposal 9/20/49; 10/18/49
- G. Trifluorochloroethylene Exposures, K-413 Bldg. 5/10/49
- H. Fluorine Fumes north of K-1401 Building 3/8/49
- I. Water Sampling (Tennessee Stream Pollution) 4/12/49; 5/10/49
- J. Radium Source Procedure 3/24/48
- K. State of Tennessee Regulations on Boiler
Construction and Operation 8/16/49
- L. Vacuum Cleaners for Recovery of Mercury Spills 9/30/48; 7/12/49
- M. Identification of Compressed Gas Cylinders 7/12/49
- N. Fire Prevention Week Activities 10/18/49
- O. Review of National Safety Congress 11/2/48

CARBIDE AND CARBON CHEMICALS CORPORATION

K-25 Plant

Oak Ridge, Tennessee

CENTRAL SAFETY AND HEALTH COMMITTEE MEETING MINUTES

December 6, 1949

for

November and December

Attendances: Mr. R. M. Batch Mr. W. B. Humes
Mr. A. F. Becher Mr. A. P. Huber
Mr. E. C. Bollinger Dr. J. S. Lyon
Mr. A. P. Dunlap Mr. J. J. McCarthy
Mr. J. A. Elkins Mr. J. P. Murray
Mr. G. A. Garrett Mr. D. H. Riley, Jr.
Mr. H. R. House Mr. W. L. Richardson
Dr. H. F. Henry Plant General Foreman (Represented by
Dr. F. W. Hurd Mr. J. B. Scott) (4)
Mr. G. H. Dykes Mr. R. R. Wolf

Absent: Mr. S. Cromer Mr. J. J. Fritz

The meeting of the Central Safety and Health Committee was called to order by Mr. W. B. Humes, Plant Superintendent, at 10:15 A. M., December 6, 1949. The minutes for the October meeting were approved as written.

I. REPORT OF INDUSTRIAL HYGIENE ACTIVITIES - Dr. J. S. Lyon

Dr. Lyon reported that the following summary is a consolidation of two months' activities, October and November.

A. Uranium

1. Urinalyses

Twelve positive urinary findings were recorded on employees during the report period. Seven were the result of material releases involving five Works Laboratory employees, one Process Division employee and one in Engineering Development Division. The remaining five were picked up on employees during routine Industrial Health Re-checks, involving four employees of Process Division and one in the Process Maintenance Department.

2. Alpha Count

No positive urinary findings were recorded as a result of Industrial Health Re-checks during the month.

3. Air

Air analyses taken in the K-1410, K-131 and K-631 Buildings during the period were all below the maximum allowable concentration.

B. Fluorides

1. Two positive findings

were in a low range inasmuch as findings of 1.5 mg are considered as significant.

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2. Hydrogen Fluoride

Air samples obtained in the K-1405 Building were all below the maximum allowable concentration.

3. Fluorine

Fluorine samples from the K-1301 Building were all below the maximum allowable concentration.

C. Mercury

1. There were two positive urinary findings recorded in the K-1037 Laboratory. This condition has persisted for sometime, however, no explanation can be advanced inasmuch as the equipment is maintained in good condition and no spills were recorded. There was one questionable analysis recorded for the Machine Shop Area.

2. Three positive air analyses were recorded during dismantling of equipment in the Barrier Research Department, and five above tolerance recorded for the Laboratory due to spills.

D. Trichloroethylene

Analyses taken at the degreaser operation at K-1401 Building were all below the maximum allowable concentration, however, five samples taken in the pit excavation adjacent to this facility were above tolerance. This work has been completed, and proper precautionary measures were observed during construction.

E. Carbon Tetrachloride

Dr. Lyon reported that a new maximum allowable concentration of 50 ppm has been established by industrial medical authorities, and would be applied in the future as a plant tolerance level. During the report period four analyses in excess of 400 ppm were recorded in the Cascade Services Department; four of the samples obtained in the K-1030 Building were all below the maximum allowable concentration.

F. Ammonia

Seven air samples were recorded above the maximum allowable concentration, however, this condition has been eliminated.

G. Carbon Monoxide

All samples were below the maximum allowable concentration.

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H. Nitrous Oxide

Four above tolerance samples were recorded in the Cascade Services Department. Samples taken for nitric acid at the decontamination facilities in the K-1410 Building were all below the maximum allowable concentration.

I. Nickel

All samples were below the maximum allowable concentration.

J. Phosgene

All samples were below the maximum allowable concentration.

K. Lead

No positive findings were recorded.

L. Plutonium

No positive findings were recorded.

M. Silica

Special survey was conducted of sandblasting operation. Samples of the influent air to the sandblaster helmets were taken which revealed that the particle size was in a dangerous range. However, the concentrations were all well below the maximum allowable limits.

Mr. Humes commented that all unusual cases of exposure, particularly in the case of chronic exposure, should be brought to the attention of the division superintendent so that such incidents can be investigated to determine source of contamination, and control measures instituted to minimize recurrences.

II. REPORT OF HEALTH PHYSICS ACTIVITIES - Dr. H. F. Henry

A. Overall radiation contamination levels during the report period reflect a decrease as noted during surveys, while those for penetrating radiation have risen slightly. Lower levels of contamination were reported for the K-1300 and K-1405 Buildings where decontamination and repainting was accomplished during the month, while an increase was noted at the same time in the K-131 and K-1405 Buildings which is attributed to increased activities in those areas. The radiation level increase is due principally to the K-1004-D Radon Plant. This location is currently being used for evaluating radiation levels of the plant in place of the K-1004-D Wet Chemistry Section. A decrease in the radiation level of the K-1004-J Radiochemical Laboratory was also noted during this period.

B. Air, Water and Stream Bottom Program

A possible exposure of personnel was noted as a result of one long term air sample which was taken in the K-1410 Building, and evidence that possible exposure occurred during two short term samples was noted. The average beta activity in the K-25 sanitary water was approximately the same during the

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two months (20 c/p/m/ 100 ml) with one slight peak noted during October when the Clinch River flow dropped to 1000 cu. ft./sec.

1. Air

Nine locations reported long term air samples for the months of October and November, a total of 27 out of 446 recorded showed above tolerance contamination. Of these, 21 occurred in the K-1405 Building during operations involving moving material from one vessel to another; protective equipment was worn. One sample was obtained in the Oxide Conversion Room in the K-1301 Building while a reactor was being opened. The remaining five occurred in the K-1400 Building where the source of contamination has not been determined. It is not known whether or not personnel were exposed. The possibility of improper air sampler filter paper changing is being investigated. Respirators were worn during charging and unloading of the furnaces and in changing press filters. One hundred and ninety-six alpha and two hundred and ninety-eight short term air samples were taken during the report period. Of these fifteen alpha samples were found to be over tolerance. There is evidence that personnel were exposed during three of the above tolerance samples. Two were recorded in the K-1405 Building while a janitor was sweeping up. While he was wearing respirator, other personnel nearby were not doing so. The other occurred in the K-131 Waste Recovery Room as a result of a leaky connection of a reactor to a flange. In all other cases personnel involved were wearing proper respiratory protective devices.

2. The average beta activity of the K-25 sanitary water of 19 c/p/m 100 ml during November rose slightly over the previous month. A small peak of 76 c/p/m 100 ml occurred on November 1st due to uncontrolled discharge from White Oak Creek.

3. Mud

Analyses of mud in Poplar Creek continue to show that there is about 2.5 ppm of uranium as compared with 0.16 ppm in the Clinch River above Elsa Gate.

C. Personnel Monitoring

1. Hand counts at the close of the period indicates approximately 573 persons were checking their hands on a daily basis, indicating an increase of approximately 2% over previous periods. Only one case of an employee leaving the plant with final above tolerance hand contamination was noted. Spot checks of employees for contamination while working indicated approximately 22% of those checked had over tolerance contamination of hands, clothing, gloves and shoes during working hours. This reflects a decrease over similar conditions experienced during the month of October. Eleven pairs of personal shoes were found to be contaminated, while only eight pairs of Company issued shoes were found to be contaminated. Two employees of the K-1401 Sheet Metal Shop contaminated their personal clothing while working on a piece of contaminated equipment for which a hazardous work permit had not been issued, which would have called

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their attention to this fact. Employees entering the K-302-4 and K-302-7 canteens during their lunch period were checked for contamination and only one person was found to have above tolerance hand contamination and one other above tolerance contamination on coveralls.

2. Film Badges

There were no above tolerance film badges exposures reported during the period.

3. Film Rings

Two above tolerance exposures were reported during the period with an average of eighty-one film rings used weekly. In the one case an above tolerance beta/gamma exposure was reported. Investigation revealed the exposure was from beta alone and the reading, therefore, was interpreted to be below tolerance gamma radiation. The other exposure occurred in the K-1004-D Radon Plant. An increase of approximately twice the number over the previous month was recorded on film rings between 30 and 300 mrep per week.

4. Pocket Chambers

Two above tolerance pocket chamber exposures were reported; in the one case the reading showed 200 mr/day. Investigation revealed the employee received the exposure while attempting to unplug some lines in a hood. To accomplish this he reached over the shield provided and exposed the upper portion of his body.

D. Radiation Survey Instruments

1. Six Samson alpha meters were received and put into operation during the month. This instrument has a sensitivity about five times that of the Zuto and is not so sensitive to variations in its environment.

2. The recently completed beta-water monitor is being field tested. Results indicate that certain engineering changes will be desirable.

E. Routine and Continuing Programs

1. Three material releases were reported during the period. As a result three employees were referred to the dispensary for supervisory examination. No apparent injuries resulted. These occurred in the K-1405 Building and K-301-1 Building.

2. Lectures and demonstrations on the operation of radiation detection instruments was extended to members of the Fire Department as part of the Safety Department's Emergency Squad Training Program. This also included a review of the film "Atomic Energy and Health".

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F. Special Studies

1. Mallinckrodt Shipments

On two occasions during November shipments were received from the USAEC, St. Louis, Missouri facility. Checks for contamination revealed surfaces had overtolerance wipe activity. No container leaks were discovered.

2. Hood Velocity Tests

Velometer tests of hoods and booths in Chemical Operations Department were made and all facilities were found to provide satisfactory air velocities.

3. A special survey was made for penetrating radiation in connection with K-1004-D Radon Plant; further shielding was recommended and is being provided.

4. A method of air sampling to obtain immediate estimates of air contamination during an emergency is being investigated with promising preliminary results.

III. REPORT OF SAFETY ACTIVITIES - Mr. A. P. Dunlap

A. Personal Injuries

1. Mr. Dunlap reported that the _____ case involving injury to an employee during the month of September had been accepted against the record as a permanent partial disability and would be recorded as a major injury. He reported further that the _____ case previously reported in October resulted in four days of disability. Acceptability under the provisions of the American Standards Association Code is pending. No major injuries were recorded for the month of November.

2. On December 2nd a major injury was recorded which involved an employee of the General Maintenance Division, who suffered amputation of the right arm when the top portion of a Dempster-Dumpster garbage container was accidentally tripped from a hook on the truck hoist as the employee reached inside to dislodge some waste. His right arm was pinned between the bottom and top sections of the container and badly crushed. Investigation of this case revealed the fact that the container had become dislodged from the hook when the truck lurched backward slightly as the operator released the clutch before the motor died, which exerted leverage against the bottom section which in turn raised the top section off the hook. In that no device was provided for locking the container bail in the hook, it slid out allowing the container to fall. This had happened on several times in the past but the employees failed to report the condition to their supervisor as they did not recognize the accident potentialities of such incidents, and therefore, felt it was just the nature of the "beast". In checking with the manufacturer it was discovered that similar accidents had been experienced under the same or similar conditions by other industrial organizations. As a result a safety device had been fabricated in cooperation with the Dempster Company which would lock the container bail into position which would have to be

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tripped manually by the operator prior to release. It was pointed out that this accident definitely indicates the need for convincing employees with the importance of reporting all equipment defects, as well as accidents which do not involve damage or injury, to their supervisors immediately.

B. No-Injury Accidents

1. During the two-month period two fires were recorded in the laboratory facilities, one of which resulted in considerable damage in the Barrier Research Laboratory, K-1401 Building, when an electric furnace was allowed to remain energized after work hours unattended. Heat from the furnace ignited the wooden table top on which it had been placed. Cause of the incident was attributed to insufficient clearance of heating device from combustible surface which was further enhanced by probable leakage from defective insulation around the unit.

The second fire occurred when a cooling water seal around the top side of a piece of experimental apparatus which was being heated in a bowl of Fisher wax failed, allowing water to drip into the wax causing it to boil over and ignite on the hot plate. Fire spread to the window shades and wall surface. Damage was confined to the equipment and smoke damage to the room.

2. Mr. Dunlap reported that there had been seventy-two motor vehicle accidents recorded for the year, with \$2,600 damaged associated therewith; four were recorded on one day during the past month. In general, backing without clear vision to the rear and failure to check clearances from adjacent equipment or objects continued to be the primary cause of such accidents. These causes continue to reflect carelessness or a negligent attitude on the part of employees who fail to check clearance prior to moving the equipment.

3. A total of sixteen property damage accidents with a loss or damage associated therewith of \$1,260 has been recorded for the year to date.

C. Safety Lane Inspection

Mr. Dunlap reported the results of the safety lane inspection for the last period indicates that 40% rejects were experienced. The safety lane checks are presently on a six months schedule and the greater number of rejects indicates that greater emphasis must be placed on reporting of defects by the individual driver to cut down the reject percentage. In general, both the accident experience and inspection experience indicates that abuse of company vehicles and laxity in reporting defects should be forcefully brought to the attention of all concerned.

D. Fatalities - UCC

Mr. Dunlap reviewed a recent fatality experienced by the South Charleston Plant involving an employee who was injured from a fall from a ladder and a second one which resulted when an employee slipped in a shower stall and struck his head against the curbing.

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1. In the case of the ladder incident, the employee had used a ladder not equipped with safety feet and decided to take the chance because the work involved was of short duration. The ladder slipped on a waxed concrete floor and his leg was pinned between the rungs of the ladder as he fell. Subsequent complications due to the injury resulted in fatality.

2. In the case of the employee slipping in the shower stall, the floor finish was a hard troweled concrete surface and not provided with anti-slip surface. A survey was made of our plant to determine status of locker facilities, and, in general, they are equipped with anti-slip paint, either Perroxx or Goodyear Grip Tread. All such facilities should be checked periodically to assure that a good anti-slip surface is provided.

E. Explosions - Commercial Refrigerators

It was reported further that the plant had been surveyed to determine storage of volatiles in commercial refrigerators. A recent incident involving a Texas City explosion resulted when an explosive concentration in such a refrigerator was ignited by a spark produced by the electric thermostat. Storage of materials in such facilities should be closely checked and where necessary, such controls should be located outside of the cabinet or be of explosion-proof design.

F. Motor Vehicle Accident Reporting - Tennessee Financial Responsibility Law

A communication has been received from the Atomic Energy Commission which indicates that drivers of Government vehicles are exempt from the reporting provisions of the Tennessee Financial Responsibility Law; however, in each case where notification is received from the State that a report is required, they should be referred to the Safety Department for handling with the Atomic Energy Commission.

IV. NEW BUSINESS

A. More Extensive Use of Plutonium

Dr. Hurd reported that use of plutonium in the laboratory facilities will be increased from time to time over the present microgram quantities handled in the K-1004-J Laboratory. He pointed out therefore closer checks of individuals exposed to this material should be instituted. He recommended that more frequent urinary examinations be scheduled for employees exposed to these operations by stepping up the present Industrial Health Re-check schedule and that nose wipes also be included as part of the routine. It further developed that equipment used in this service, as well as wastes, would require special consideration to preclude wide spread plant contamination. Mr. Murray requested that the Laboratory Division be responsible for clean-up of spills occurring in these operations and also for recovery of the material containing plutonium to preclude possible contamination of other equipment at the decontamination facilities.

B. Company-Union Safety Meeting

Mr. Dunlap reported that the first Company-Union safety meeting had been held with all members present. It was agreed by all concerned that the

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committee was not an action committee but should rather consider itself with basic safety problems of mutual interest. It was further agreed that all of the committee's actions were subject to the approval, rejection and/or comments of the Company.

Two objectives were set up: (a) to promote improvement in plant safety and to further the establishment and understanding of existent company policy to provide for the safety and health of employees; and (b) to fulfill the intent of the Contract between the Union and the Company as related specifically to Article IV, Section 3.

During the meeting the Safety Department reviewed the accident experience within industry as well as the K-25 Plant which points up the need for placing greater emphasis on unsafe practices of individuals which are the major producers of injuries. Several instances of this nature were discussed by the group and it was agreed that each member would review during the coming month unsafe plant practices which they felt to be of plantwide interest, which should be discussed with employees, and which would be referred to the Company for action if felt necessary.

C. New Safety Developments - National Safety Congress

Mr. Richardson reported that a few items noted during visits to the manufacturers' exhibitions at the National Safety Congress appeared to have some plant application and were being studied further. These included:

- a. A new two - three pole polarized female receptacle which is interchangeable for use with either two or three pole, polarized grounded types of male attachment plug.
- b. Hydraulic Work Platform - This is a hydraulic lift platform which provides a 17' working level or a maximum 24' working height, which can be lowered and collapsed for movement through any standard seven-foot door opening.
- c. A new hotline tool has been developed by the A. B. Chance Company for raking up hotline taps using standard Kearney connectors.

D. Dr. Hurd reported that laboratory checks on chlorine trifluoride and fluorethene indicates that trapping of liquid chlorine trifluoride results in burning and charring of the fluorethene. He pointed out that ClF_3 would react instantaneously and explosively with organics, therefore, its use should be thoroughly checked in this regard.

E. Mr. Riley reported that the final report on plant activities during Fire Prevention Week was nearing completion. He indicated reports on all buildings inspected had been completed. He recommended a continuing inspection through committee activity as the best method for continuing this program. He felt that Central Safety Committee members should be made aware of plant conditions through these inspections so that follow-up on

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this program can be assured. Mr. Humes pointed out that a working committee at a level lower than the Superintendents' Group could perform this inspection and report their findings in a summary review for the benefit of Central Safety Committee members. This will be done.

The meeting adjourned at 11:40 A. M.



A. P. Dunlap, Superintendent
Safety and Inspection Division

AFB:hmt

cc: Mr. C. E. Center
Mr. O. Rinehart
Mr. T. E. Lane
Mr. C. N. Rucker
Dr. C. E. Larson

PLANT ACCIDENT EXPERIENCE

November, 1949

MAN HOURS

Thru November 30th - 821,530, since major injury on October 24th

MAJOR INJURIES

None

Frequency Rate .00

Severity Rate .08, includes second period of disability
rigger, sustained back sprain 5/17/49

SUB-MAJOR INJURIES

One; rigger sustained back strain; previous back sprain on 9/9/49.
(reports attached)

MINOR INJURIES

174

MOTOR VEHICLE ACCIDENTS

Nine reported; damages \$131.50. Estimated mileage 186,439; frequency rate 4.83. (failure to check clearance with fixed and moving objects predominant causes)

FIRES

Two fires recorded; fire loss ratio for month of November \$0.12, and year to date \$0.02.

- (1) Grass fire resulted from welding sparks while welding on overhead pipeline; no damage.
- (2) Considerable damage (estimated at \$500.00) to equipment and facilities in an experimental laboratory was incurred when an experimental furnace was left energized on top of a wooden work table at the close of the shift. Insufficient space was provided between the combustible surface and the furnace; subsequent heating ignited the table top. Fire was discovered and reported by employee checking facility at 11:30 P. M. Fire Department responded and extinguished with water stream.

PROPERTY DAMAGE

Two property damage accidents; estimated loss of \$145.00.

- (1) Portable air compressor tipped over when tow hitch came loose, damaging radiator, cowl, etc; damages \$35.00.

- (2) Coolant drum being fabricated in shop ruptured when welder over-pressured equipment by applying a 90# air test to check for leaks - instead of routing equipment for vacuum test as prescribed; damage estimated at \$110.

MATERIAL RELEASES

Two reported; employed referred to dispensary for supervisory exams..
no apparent injuries.

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 Plant
Oak Ridge, Tennessee

CENTRAL SAFETY AND HEALTH COMMITTEE MEETING MINUTES
October 18, 1949

Attendance: Mr. R. M. Batch Dr. F. W. Hurd
Mr. A. F. Becher Mr. W. B. Humes
Mr. E. C. Bollinger Mr. A. P. Huber
Mr. S. Cromer Dr. J. S. Lyon
Mr. A. P. Dunlap Mr. J. J. McCarthy
Mr. C. H. Dykes Mr. D. H. Riley, Jr.
Mr. J. A. Elkins Mr. W. L. Richardson
Mr. J. J. Fritz Plant General Foreman (Represented by
Mr. H. R. House Mr. D. H. Rader) (4)
Dr. H. F. Henry Mr. M. F. Schwenn

Absent: Mr. J. P. Murray Mr. R. R. Wolf

The meeting of the Central Safety and Health Committee was called to order by Mr. W. B. Humes, Plant Superintendent, at 10:30 A. M., October 18, 1949. The minutes for the September meeting were approved as written.

I. REPORT OF INDUSTRIAL HYGIENE ACTIVITIES - Dr. J. S. Lyon

Dr. Lyon reported that general plant conditions were much improved over the previous month's experience. He stated further that the new two-hour urine sample interval had been put into effect for exposure cases, and it is his opinion that this would work out satisfactorily in the future.

A. Uranium

1. Urinalyses

Nine positive urinary findings were recorded on employees involved in the release in the K-631 Building; one positive finding was recorded for an employee from Plutonium Research, and three positives recorded on employees during Industrial Health Re-Checks.

2. Alpha Count

No positive analyses were recorded for the report period.

3. Air

Three samples above the maximum allowable concentration were obtained at a hood in the Works Laboratory. The employee was not exposed, however, the operation has since been equipped with a plexi-glass shield to provide for better air flow around the hood opening.

B. Fluorides

1. There were no positive urinalyses recorded during the month.

2. Hydrogen Fluoride

All air samples were below the maximum allowable concentration.

C. Mercury

1. Urinary results in one case was a borderline positive.
2. Air analyses were all below the maximum allowable concentration except for four taken adjacent to a vacuum cleaner equipped with a hopcalite filter.

D. Plutonium

All analyses were below the plant tolerance.

E. Beryllium

All analyses were below the plant tolerance.

F. Trichlorethylene

No unusual results were obtained at the degreaser unit; however, high findings were recorded in the pit being excavated for installation of a new degreaser unit, K-1401 Shops. Ventilation and respiratory protection was provided and employees were examined at the Dispensary. No apparent injuries resulted.

G. Nitric Oxide

High samples were obtained at the K-132 Building when the operation was started up under inclement weather conditions. A heavy blanket of fumes were observed, both in and outside of the building; operator and analysts were referred to the dispensary and given oxygen as precautionary treatment. This operation will not be started up under adverse weather conditions or at night, but will be operated only during clear weather to allow for dissipation of the fumes.

II. REPORT OF HEALTH PHYSICS ACTIVITIES - Dr. H. F. Henry

A. Overall Radiation and Contamination Levels

1. Spot surveys during September reveal a rise in the overall plant contamination level. This is attributed chiefly to contamination as a result of the material release in the K-631 Building, as well as increased contamination at the following locations: K-1301 Electrochemical Laboratory, K-1004-A Sampling Section, K-1004-D Radon Plant; lower levels of contamination were reported for the Coded Chemicals Vaults, K-1401 Basement, and K-1410 Building.

2. An increase in the levels of penetrating radiation intensity were reported in the following locations: K-1004-J Radiochemical Laboratory, K-131 Fresh Feed Room. A decrease was reported for the K-1301 Oxide Grinding Room.

B. Air, Water and Stream Bottom Survey Program

1. Air

a. Reports were received during the month from all nine routine, long term air sampling locations in the plant. These revealed six over-tolerance samples as compared with a total of twenty-five reported for August. Four of these were recorded in the K-1401 Building during transfer operations; one as a result of material release in K-631, and the other recorded in the K-1301 Oxide Conversion Room during changing of a reactor. In all instances respiratory protective equipment and other protective clothing was worn.

b. Ninety-one alpha and twenty-four beta air samples were taken during the month; of these, nine alpha and two beta samples were over-tolerance. Of these over-tolerance samples, three alpha and the two beta samples were obtained in the K-1405 Building during transfer operations. Another alpha spot sample was reported for this same location which occurred while the floor was being swept by a janitor, who was not equipped with respiratory protection; use of vacuum cleaners for this type of work has been initiated. Two additional above-tolerance alpha samples were taken near the filter press, K-1301 Building, during filter change. Respirators were not worn; this has since been changed and operations now require the wearing of respiratory protection. One alpha spot sample was recorded in the K-1004-A Sampling Section, Room 19, following a release. Personnel were referred to the dispensary for examination. One alpha sample taken in the K-1301 Electrochemical Laboratory was reported as over-tolerance, but no work has been done in this location since contamination occurred. Final above tolerance alpha sample was obtained in the K-1410 Building during material transfer; respiratory equipment was worn.

2. Water

The beta activity in drinking water during the month of September averaged 13 c/m/100 ml as compared with 16 c/m/100 ml for August. Routine samples from Poplar Creek continue to show uranium contamination from fifty to one hundred times that in Clinch River mud. Sludge samples from the laboratory acid dilution pits revealed uranium contamination; however, no hazard to personnel exists. Work continues on the continuous beta water sampler; preliminary tests during the month revealed several difficulties which require further correction.

C. Personnel Monitoring

A ten percent increase in the number of personnel taking part in the hand counting program was recorded. This is attributable to the installation of a new portal control for visitors to the K-1300 Area. A slight increase in film badge usage, as well as a slight decrease in pocket chamber use, was noted. One case of final over-tolerance hand contamination was recorded, and one case of over-tolerance film ring reading was reported. The one over-tolerance hand case resulted when the employee left the plant knowing that he had contaminated hands and washed at home. Subsequent check on the following day revealed his hands to be below tolerance. Film ring exposure resulted from careless handling of a radium source by an employee while transferring radium salts to a permanent plant.

D. Personnel Contamination

Personnel entering the canteens at the K-302-4 and K-402-7 Buildings were checked during lunch periods for contaminated hands, clothing and shoes. Of the

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thirty-three checks made, the only contamination found was on two pairs of Company-issued shoes. An additional seventy-two persons were spot checked while working; twenty-six percent of the persons checked worked with contaminated hands; thirty-one percent wore contaminated shoes; ten percent had on contaminated clothing; forty-seven worked with contaminated gloves. This shows a decrease over previous report periods. In addition, six pairs of personal shoes were found to be above tolerance contamination; in all cases the immediate supervisor was notified.

E. Film Badges and Pocket Chambers

The number of exposures at below tolerance levels for film badges were approximately the same as previous months. However, an increase is noted in the below tolerance exposure levels recorded for film rings as well as pocket chambers during the month. This increase in pocket chamber exposures is attributed in part to maintenance work and dismantling of "hot" equipment in the Radiochemical Lab., and in the case of the film rings, the majority of these cases were reported in the Radiochemical Laboratory; one case investigated revealed employee had worked with a slug which had been removed from the Y-10 pile, and received high dosage to the hand in so doing.

F. Radium Sources

All sources were checked during the month and no evidence of leakage was reported.

G. Education and Promotion

A program was initiated during the month to promote the inclusion of radiation and contamination hazard considerations along with plant housekeeping inspections. Promotional materials in the form of posters were posted throughout the plant and printed material including a check-off sheet for housekeeping committees, as well as discussion material on contamination control, was furnished to safety committee members.

III. REVIEW OF SAFETY ACTIVITIES - Mr. A. P. Dunlap

A. Personal Injuries

No major injuries; four sub-major injuries and a total of one hundred sixty-three minor injuries were recorded for September. The minor injuries reported reflects a forty-seven percent decrease over August, and is the lowest in plant history. This marks the fourth time this year the plant operated without a disabling injury during a report period, and at the close of the month 1,354,027 man hours were recorded since the last disabling injury; as of October 16th 1,684,000 man hours were completed. Mr. Dunlap further reported that the total of the three Oak Ridge plant operations, if continued to the end of the month of October, would reach a five million man hour record, which is the first such record ever recorded in UCC history.

Mr. Humes requested the group to review the accident record with their safety committees. He pointed out that some people were inclined to think that merely because we do not have operations which occasionally blow up a unit and cause a fatality or two, that we have here the safest plant in the world. "Seriously", he continued, "one and one-half million man hours is a pretty good record for this or

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any other plant because its the occurrence of every-day 'garden variety' type accidents that break the record in our plants." We have come close to or exceeded one and one-half million man hours several times this year. We can and will exceed three or even five million man hours if we continue to work at it.

B. No-Injury Accidents

1. Material Releases

Seven material releases were recorded during the month. While all employees were referred to the dispensary without apparent injuries resulting, it is still evident that employees enter spill areas without using personal protective devices. He emphasized that we should be certain by monitoring and air sampling that the need for wearing such equipment no longer exists before letting up on the use thereof.

2. Fires

There were no fires recorded during the month; cumulative loss ratio is \$.006 per \$100 invested capital - an excellent record!

3. Motor Vehicle Accidents

A frequency rate of 2.11 was recorded as a result of four accidents with an estimated damage or loss in the amount of \$182.20 associated therewith. Cause for the most part is still due to failure to check clearance in backing.

4. Property Damage Accidents

Damage for the year to date is \$634.33. This included a motor which was burned up during the month of September which resulted when the operator failed to check all points of disconnect when leaving the plant at shift change time. Another case of motor damage was reported during the month of October when a process maintenance mechanic drilling a motor "end bell" to attach a strap hanger for the ventilating duct, allowed the drill to slip, striking the motor lead; subsequent short circuit burned out the field and burned the employee's hand. This operation has since been changed to provide for attachment to the motor bolt head, which will eliminate possibility of contacting the motor winding. Damage was estimated at \$280.00.

IV. OLD BUSINESS

A. Disposal of Hazardous Wastes

Mr. Humes reported that he and Mr. Huber were acting as a sub-committee to study this problem; action deferred.

V. NEW BUSINESS

A. Report of Fire Prevention Activities - Mr. D. H. Riley, Jr.

1. Mr. Riley reported satisfaction with the program during plant Fire Prevention Week, generally; he felt that the participation by all employees

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was excellent, and that the results obtained were indicative of plant-wide interest. He pointed out, however, that considerable work was necessary in connection with plant emergency planning: in contacting local emergency groups throughout various areas of the plant for participation in the fire demonstrations it was found they were not up to par, and in many areas, such groups had been discontinued or not kept up to full strength.

2. He stated further that the feeling on the plant seemed to be that with the activation of the plant emergency squads and the acquisition of our new emergency truck, this relieved all local groups of responsibility for the handling of emergencies. He pointed out that this is extremely dangerous because in many cases response of the plant emergency squads or other staff groups such as Fire Department is too slow to handle an emergency in its incipiency. This was highlighted by a recent problem drill involving the plant emergency squad on a simulated electrocution case. The response of the squad involved six and one-half minutes from the time of the alarm until arrival at the scene, which is about the average time you might expect them to make on such a run. This further points up the need for trained local groups who can get on top of the emergency and handle it promptly. Mr. Humes remarked that emergency planning had been master-minded as far as possible on the plant, and that we could not expect to set up a plan to handle each and every incident which might occur. He emphasized it was, therefore, incumbent upon line organization to take the necessary steps to properly train selected persons within their organization to handle such emergencies as might be anticipated through an evaluation of their operations.

3. Mr. Dunlap reported that an Emergency Squad Training Manual had been prepared to be used as reference material for the training of such emergency personnel throughout the plant, and copies were being made available to the division superintendents for distribution within their division to all levels of supervision. This manual will be supplemented from time to time with information pertinent to potential plant hazards.

4. Mr. Riley also reported that it was the committee's feeling that next year's program should emphasize preventional methods rather than extinguishing methods, not only in plant discussions but in the demonstrations. He summed up the year's activity with a strong recommendation that a sub-committee be established to the Central Safety Committee who would evaluate the effectiveness of the overall plant safety and fire prevention program. He proposed a survey of each division's facilities and work practices, as well as a review of their safety committee activities, would be made and a report of their findings and recommendations would be submitted to the Central Safety and Health Committee members. Mr. Humes remarked that this appeared to be a good idea; that this evaluation could serve as a basis to compare the safety performance of the various divisions with a plant standard. He stated that he would review the matter during the next month, and consideration would be given to appointment of such a sub-committee on a rotating membership basis at the next meeting.

B. Motor Vehicle Inspection

Mr. Richardson reported that the Department of Public Safety, AEC, had requested permission to conduct the semi-annual inspection of all plant vehicles.

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He recommended that a schedule be arranged to include all vehicles within a one week period to avoid unnecessary inconveniences to the plant. Mr. Humes requested the Maintenance Division to put out a bulletin this week announcing the schedule for inspection, which would be scheduled for the following week.

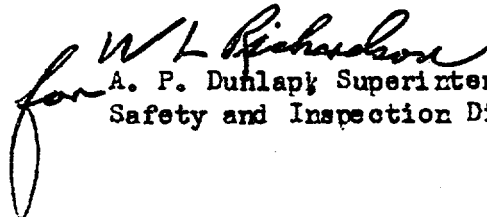
C. Cost Factors on Protective Equipment Usage

The Safety Department distributed copies of standard costs which had been developed in cooperation with the Tool Department on all items of protective equipment handled by the plant. Cost factors are based upon depreciation of the items through use as well as sterilization, repair and cleaning costs in handling thereof; it was pointed out they do not include fixed overhead expense of the Tool Department nor procurement and safety engineering services. It was suggested these costs could be made available to the divisions concerned for their information and use, or could be used for charging the using department. It was the concensus that these costs be made available to all divisions concerned.

D. Dr. F. W. Hurd requested that the following items be included on the agenda for the next meeting:

1. More extensive use of plutonium in undiluted form;
2. Review of a new report received on Pharmacology and Toxicology of Uranium, which summarizes the latest work completed at Rochester, New York.

The meeting adjourned at 11:50 A. M.


for A. P. Dunlap, Superintendent
Safety and Inspection Division

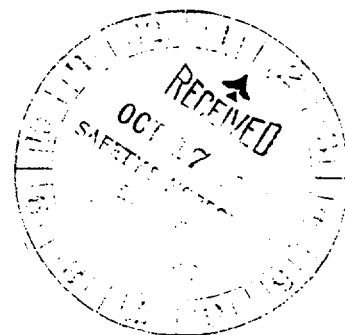
AFB:mrh

cc: Mr. C. E. Center
Mr. T. E. Lane
Mr. O. Rinehart
Mr. C. N. Rucker
Mr. C. E. Larson

AGENDA FOR THE
CENTRAL SAFETY AND HEALTH COMMITTEE
MEETING
CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 PLANT

October 18, 1949

1. Review of Minutes.....Mr. W. B. Humes
2. Review of Industrial Hygiene Activities.....Dr. J. S. Lyon
3. Review of Health Physics Activities.....Dr. H. F. Henry
4. Review of Safety Activities.....Mr. A. P. Dunlap
5. Old Business
 - Disposal of Hazardous Wastes
(Decision deferred from last meeting)
6. New Business
 - a. Fire Prevention Week Activities.....Mr. D. H. Riley, Jr.
 - b. Protective Equipment Costs.....Mr. A. F. Becher
 - c. Semi-annual Motor Vehicle Inspection
by Oak Ridge Department of
Public Safety.....Mr. W. L. Richardson
 - d. Distribution of Training Manual for
Plant Emergency Personnel.....Mr. A. P. Dunlap



CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 Plant
Oak Ridge, Tennessee

CENTRAL SAFETY AND HEALTH COMMITTEE MEETING MINUTES
September 20, 1949

Attendance: Mr. R. M. Batch Mr. W. B. Humes
Mr. E. C. Bollinger Mr. J. J. McCarthy
Mr. S. Cromer Mr. J. P. Murray
Mr. J. A. Elkins Mr. D. H. Riley, Jr.
Mr. H. R. House Plant General Foreman (Represented by
Dr. F. W. Hurd Mr. W. H. Taylor) (4)
Mr. A. P. Huber Mr. R. R. Wolf
Mr. J. J. Fritz Mr. W. L. Richardson

Dr. J. S. Lyon Dr. H. F. Henry
Mr. C. A. Babcock Mr. A. F. Becher

Absent: Mr. A. P. Dunlap

The meeting of the Central Safety and Health Committee was called to order by Mr. W. B. Humes, Plant Superintendent, at 10:05 A. M., September 20, 1949. The minutes for the August meeting were approved as written.

I. REPORT OF INDUSTRIAL HYGIENE ACTIVITIES - Dr. J. S. Lyon

A. Uranium

1. There were four positive urinary findings recorded during the month as a result of Industrial Health Re-checks involving two employees of the Chemical Operations Department and two of the Cascade Operations Department. Subsequent re-checks on the above individuals were all negative.

2. Air analyses for uranium during the month revealed six above tolerance analyses obtained; four involving operations in the K-1405 Building, and two in the K-1004-C Laboratory. Employees involved in the operation of K-1405 Area were equipped with respirators, and, in the other case, intermittent exposure resulted from operations within an exhaust hood. Additional exhaust facilities are being considered.

3. Alpha Count

Three positive urinary findings were recorded as a result of Industrial Health Re-check examinations involving employees of the Cascade Services Group.

B. Fluorides

1. No positive findings were recorded during the report period.

2. Hydrogen Fluoride

One over tolerance air sample was obtained in the K-1405 Building, and one on hood operations, K-1004-C Laboratory. Additional ventilation facilities are being considered to minimize this condition.

C. Mercury

1. Three positive urinary findings were recorded as a result of Industrial Health Re-checks taken involving employees of the Engineering Development Division, Instrument Department and Works Laboratory Department.

2. Air analyses for the month were all below the maximum allowable concentration.

D. Trichlorethylene

1. Several high results were obtained following removal of a CWS cylinder from the degreaser in the Special Shops Department.

2. Seven samples in a range of 100 - 200 p.p.m. were recorded for operations in the K-1030 Building; however, these were taken with a Halide Flame Detector and are not comparable with the Davis Micro Gas Analyzer results. A re-check is planned of these operations following repairs to the Davis equipment.

E. Plutonium

All results obtained were well below the tolerance factor.

F. Lead

No positive urinary findings were recorded during the report period.

G. Mr. Humes mentioned that the odor of fluorine near the K-1401 Building has been quite noticeable on occasion and raised the question whether this was attributable to purging of the cascade. Mr. Huber indicated this was probably the case, and that Process Division was presently working on installation of suitable scrubbers for the various exhaust points in the cascade to minimize this condition.

II. REPORT OF HEALTH PHYSICS ACTIVITIES - Dr. H. F. Henry

A. Overall Radiation and Contamination Levels

1. Spot surveys of the plant during the month of August indicate that overall contamination levels are significantly lower than the preceding month. This is attributed to improved conditions in the K-1303 Building, K-1401 Pump and Seal Shop, K-306-6 Product Withdrawal station, and cylinder assembly and test shop. Higher contamination levels were reported for the K-413 Process Laboratory and K-312-3 Maintenance Shop.

2. Levels of penetrating radiation intensities in the plant remain approximately the same as previously reported. However, increased levels were recorded in the K-1301 Oxide Grinding Room and the K-1405 West Room. These were attributed to equipment maintenance in the grinding room and to a change in the type materials being processed in the K-1405 Building. A decrease in intensity levels was recorded in the K-1004-J Radiochemical Laboratory.

B. Air, Water and Stream Bottom Survey Program

1. The lowest average beta activity in the K-25 drinking water for the year was reported during the month of August. This decrease in activity is due to better control of White Oak Creek discharge since start-up of the evaporation process at X-10, in addition to the greater dilutions obtained by higher river flows. The continuous water monitor has been assembled and is being prepared for preliminary test prior to installation at the sanitary water treatment plant.

2. Reports on eight of the ten continuous sampling locations in the plant indicate twenty-five above tolerance samples obtained in the K-1405 Building, in the west, middle, east and large fluorinating tray rooms. Air activity at these locations results from transfer of material between container and reactor; personnel thus engaged are provided with proper respiratory protection during such operations. Reports were not received from the K-1301 Reactor Room and the K-1410 Building. A total of one hundred fifteen alpha and thirty-eight beta spot samples were taken throughout the plant during the report period. Above tolerance contamination was indicated in twenty-seven of the alpha samples taken and one beta sample. Sixteen of the above tolerance alpha and one beta sample were obtained in the K-1405 Building during a special operation of an experimental nature. Since this time the operation has been revised so as to reduce the possible air hazard. The remaining above tolerance spot samples were obtained under the following condition

- a. Material transfer operations, K-1405
- b. Pump change jobs in K-312-1
- c. Oxide grinding operations in K-1301
- d. Pipe cutting operations, K-306-1
- e. Seal changes in K-310-3

In all of the above cases respiratory protection was worn except in one instance when high assay solution was being emptied in the acid loop outside the K-1303 Building. However, the hazard was of very short duration and since the operation was outside, contamination was rapidly dispersed.

3. No mud sample analyses were reported for the month of August.

C. Personnel Monitoring

1. A slight increase in the number of personnel using personnel monitoring devices was recorded during the month of August. There were no cases of over-tolerance exposure to penetrating radiation except for one film badge reported in excess of 500 mrep per week, which was later revealed to have been "light struck". Twelve final above tolerance hand counts were recorded, and subsequently investigated to determine causes.

a. Personnel Contamination

Spot checks of personnel wearing protective equipment entering the main cafeteria revealed no above tolerance hand, shoe or clothing contamination. Spot checks made on one hundred five employees "on-the-job" revealed that there was approximately 300% increase in hand contamination, as well as 130% shoes, 180% clothing, and 230% on gloves.

b. Film Badges, Film Rings, and Pocket Chambers

No over tolerance personnel exposures were recorded during the report period.

D. Radium Sources

None of the twenty-six radium sources available on the plant showed any evidence of radium leakage; 250 mg of radium assigned to the Laboratory Division has not been checked as yet since it is sealed in glass and not placed in a permanent container.

E. Special Studies and Investigations

1. Fluorination of UAP to UF_6

An audit and study was made of the experimental room of the K-1405 Building involving drying of wet uranyl ammonium phosphate, de-ammoniation, and fluorination to UF_6 . Results of checks for alpha and beta as well as air samples for alpha and beta-gamma contamination reveal that the operation was safely performed and contamination kept to a minimum by use of paper floor coverings and prompt clean-up of spills. Penetrating radiation, slightly above tolerance, was measured near the material during processing through the first fluorination stage; during the second fluorination, a slight build-up of fission products from UAP was experienced and local radiation as high as 160 mrep/8 hours was measured.

2. Contamination Laundry

Study was made to determine feasibility of combining the contaminated clothing laundry, K-1301, with the main clothing laundry facilities. Since some of the main laundry equipment would have to be used for both contaminated and non-contaminated clothing at various intervals, and the main laundry facilities do not lend themselves to complete separation of contaminated and non-contaminated work areas, it was felt desirable to maintain separate facilities at this time.

III. REPORT OF SAFETY ACTIVITIES - Mr. W. L. Richardson

A. Personal Injuries

1. During the month of August, two hundred forty-five occupational injuries were sustained by K-25 employees, as compared to two hundred one for the month of July. None of the above resulted in loss of time, however, two necessitated temporary assignment of the injured to other regularly established work due to the severity of the injury; the remaining two hundred forty-three required first aid treatment only.

2. As of September 18th the plant had operated 1,067,720 man hours since the last disabling injury recorded on July 31, 1949. At the present rate of accumulating man hours, it is estimated that the goal of 1,500,000 man hours could be obtained by approximately October 17th. A comparison of the record for the past six years noted on the following page indicates that the experience for the year to date is lower by 50% than the best previous record established for the plant, and, in addition, reveals that the average days lost per major injury has been even more sharply reduced.

<u>Year</u>	<u>Frequency</u>	<u>Severity</u>	<u>No. of Major Injuries</u>	<u>Days Lost</u>	<u>Average No. Days Lost Per Major Injury</u>	<u>Man Hours</u>
1944	9.44	0.36	35	1,342	38	3,706,005
1945	8.22	1.24	182	27,340	150	22,132,797
1946	4.05	0.67	70	11,511	164	17,293,194
1947	2.93	0.38	35	4,596	131	11,951,902
1948	3.67	0.24	37	2,442	64	10,094,708
1949	1.39	0.03	8	146	18	5,770,077

3. There were two non-tabulatable major injuries recorded during the month; however, in one case there were no facts developed wherein the complaint could be referred to a plant accident, and in the other case, loss of time involved was for observation only and no disability was involved.

B. No-Injury Accidents

1. Material Releases

None were reported during the month.

2. Fires

None were reported during the month.

3. Property Damage Accidents

One property damage accident involving \$40.00 estimated damage occurred when a plant guard allowed a gate to swing in front of a Southern Railway Company locomotive. Minor injuries were sustained by two of the Railway employees.

4. Motor Vehicle Accidents

A total of nine motor vehicle accidents were reported as compared with two for the previous month. Damage was estimated at \$318.89; frequency of motor vehicle accidents for the month of August was 4.25. Responsibility for the above mentioned accidents in the majority of cases was attributable to carelessness or negligence on the part of the operator in backing the vehicle. In fact, in three of the incidents employees were available to serve as flagman for the operator, however, they failed to do so.

IV. OLD BUSINESS

1. Safety Awards - UCC

Mr. Richardson reported that it had been agreed that no formal presentation of the UCC Safety Award would be made at the First Aid Meet by Mr. Tyra of UCC, and advised that the plaque had been installed in the main corridor of the K-1001 Building.

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Action Taken - Mr. Humes requested that photographs be taken of the award and publicity given to this fact in the Carbide Courier.

B. Traffic Problems

Mr. Richardson reported that the traffic problems referred to the Committee by Dr. F. W. Hurd had been handled as indicated below:

1. Traffic officer has been provided at the Wheat School Intersection of the Oak Ridge Turnpike.
2. Installation of a "stop" sign at the White Wing Road Intersection with Oak Ridge Turnpike had been referred to AEC Patrol, however, action has not been taken by them.
3. Pedestrian cross walks, K-1035 and K-1401 Buildings, will be re-painted within the next week according to the Plant Engineering Department.
4. Consistency of traffic flow through the security portals had been discussed with Chief J. S. Davis, AEC Patrol, and suggestions made for uniform handling. However, no improvement seems to be in evidence.

V. NEW BUSINESS

A. Traffic Control - K-25 Plant Exits

A proposed plan for the control of traffic from the plant exits to the Oak Ridge Turnpike was discussed with committee members, and Mr. Richardson pointed out how the proposed plan would affect personnel leaving the work area. Mr. Humes requested that consideration be given to re-routing traffic one way east bound on 1st Street rather than west bound, and suggested this might be discussed with Mr. McCulloch of the local AEC prior to submitting the final plan.

B. Disposal of Industrial Waste

Mr. Bollinger presented a summary of the results of a meeting held with representatives of the General Maintenance, Laboratory, Process and Safety and Inspection Divisions to review the present methods for handling the disposal of hazardous plant wastes of all types. He pointed out that the General Maintenance Division was frequently faced with the problem of disposing of unidentified types of chemicals, and felt it was desirable to establish a central log record of materials being disposed of to assure that we were in conformance with the Stream Pollution Act, as well as to assure of complete disposal of the material itself, and that safe disposal methods were employed. Following discussion of the problem it was the consensus of the group that further review of this be continued and that during the interim, safe practice procedures be developed for disposal of hazardous chemicals.

C. Provision of Uniforms in Addition to Coveralls

It was pointed out by the Safety Department that requests have been made to them to furnish trousers and shirts in lieu of present type of plant coveralls as protection against contamination. It was mentioned that

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while uniforms had been provided for employees at the Laboratory J facility because of the difficulty encountered in furnishing both male and female employees proper clothing, it was deemed desirable not to extend this use to the plant in general due to the following:

1. Shirts and trousers do not provide complete protection against contamination;
2. Present plant requirements for coveralls amount to 3500 pairs, which are furnished in sixteen different sizes. By comparison to the X-10 Plant where uniforms are provided (shirts and trousers) they find it necessary to stock thirty-six sizes in shirts ranging from 14 - 16, sleeve lengths 32 - 35, and eighty-four trouser sizes with waist measurements from 28 - 46, and 20 - 36" inseams. While some reduction could obviously be made in size selections noted above, provision of uniforms would greatly increase plant inventories and will present more acute problems in fitting and handling due to multiplicity of sizes. It was suggested, therefore, that two types of coveralls be standardized for the plant:
 - a. Dust tight type presently available for dusty operations,
 - b. Modification of this type by elimination of neck, ankle, and wrist closures to provide for more employee comfort for normal plant use.

The committee recommended that this be done.

C. Summary of Usage of Protective Equipment

The Safety Department reported that there was a considerable increase in the total number of items handled for the month of August; 10,651 items being issued during August as compared to 8,894 for the previous month. The overall increase was reflected in the use of all types of equipment, such as boots, head covers, coveralls, gloves, etc., some of which was the result of converter change activities. However, a sharp increase was noted in the use of all types of gloves - 3,044 for August as compared to 2,278 for July. While a decrease is noted in the use of special white leather gloves, general increase is noted in the use of all other types of leather gloves and observations throughout the plant indicates that misuses of this type equipment still exists. Individual reports will be furnished to the divisions concerned at their regular safety meeting.

D. Electrical Test Panel for Portable Tools

The Safety Department reported that a new type electrical test panel had been designed and installed in the various issuing tool cribs which would provide for a check of ground continuity on the tool as well as to check insulation leakage under actual operating conditions. A photograph of the equipment and instructions for its use were distributed to the committee. The Safety Department has instructed the various tool crib attendants in use and limitations of the test apparatus, and present practice provides

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that all portable electrical tools be tested prior to issuance by the tool crib attendants, and inspected to determine defective items. It was pointed out that this supersedes the former sixty day "hi-pot" test schedule, which in itself, was limited to the tools which were made available at the cribs and did not provide for a continuing test of such equipment after use. This expense will be sharply reduced by re-schedule of "hi-pot" tests to a semi-annual period. It was pointed out, however, that the effectiveness of the present program can be compromised by misuse of the equipment through failure to return defective items of equipment or those out of test dates to the issue point for repair and re-test. Supervisors should be instructed to periodically check equipment assigned on permanent loan and emphasize proper use of equipment grounding facilities.

The meeting adjourned at 11:55 A. M.


W. L. Richardson
Safety and Inspection Division

AFB:mrh

cc: Mr. C. E. Center
Mr. T. E. Lane
Mr. O. Rinehart
Mr. C. N. Rucker
Dr. C. E. Larson

AGENDA FOR THE
CENTRAL SAFETY AND HEALTH COMMITTEE
MEETING

September 13, 1949

1. Review of Minutes of previous meeting.....W. B. Humes
2. Review of Industrial Hygiene Activities.....Dr. J. S. Lyon
3. Review of Radiation Hazards Activities.....Dr. H. F. Henry
4. Review of Plant Accident Experience.....A. P. Dunlap
5. Old Business
 - a. Safety Award -- UCC.....A. P. Dunlap
(This will not be featured at First Aid Meet on 9-17-49, as
announced last month. APD)
 - b. Summary of Usage of Protective Equipment.....A. F. Becher
 - c. Traffic Problems.....A. P. Dunlap
6. New Business
 - a. Disposal of Industrial Waste.....E. C. Bollinger
 - b. Provision of Uniforms in addition to Coveralls.....A. F. Becher
 - c. Tool Crib Electrical Test Panel for Portable Tools.....A. F. Becher

file

PROTECTIVE CLOTHING

It has been the practice of the plant to provide coveralls as protection for employees whose work exposes them to radioactive contamination. A standard type of coverall is used for general protection and a special dust tight type has been developed for dusty operations.

Use of the special dust tight coverall has been considered as standard protection for Process Maintenance, Engineering Development, and were recently requested by Chemical Operations and Laboratory employees. The suit being of dust tight construction is considerably warmer and less comfortable under some conditions, however, a survey of using employees indicates a fairly even ratio of those favoring their use versus those opposed. It is felt that modification of the neck, leg and ankle openings, as well as provision of fly fronts, would overcome the objectionable features.

We have recently been requested by the Engineering Development Division to provide trousers and shirts, and by Process Division to furnish a new type of coverall in lieu of the present plant stocks. Trousers and shirts are provided for Laboratory J employees where a complete clothing change is provided for male and female employees, and coveralls were not originally felt to be desirable. However, recent trial use indicates approximately 40% favor use of the coverall rather than the uniform. It was not intended to extend use of a uniform to the plant generally for the following reasons:

1. Coveralls and uniforms (shirts and trousers) cost approximately the same, \$4.00 per unit, however, we presently stock 3,581 pairs of coveralls in sixteen sizes. Standardizing these stocks on the basis of the new type will further reduce size assortment to ten. By comparison, the X-10 Plant, where uniforms are provided (shirts and trousers), finds it necessary to stock thirty-six sizes in shirts ranging from 14 through 18, and sleeve lengths from 32 to 36. Similarly, eighty-four trouser sizes are stocked, covering waist sizes from 28 to 46, and inseam measurements of 28 to 36 inches. Obviously, extension of the use of uniforms will increase plant inventories considerably, and will present more acute problems of fitting due to the multiplicity of sizes, handling costs are likewise increased, and finally the uniform does not provide as much protection, nor would they be acceptable substitutes on dusty operations.

It is felt therefor that modification of the new type coverall to take care of employee complaints would be most practical and future purchases of a standard type coverall could further reduce size requirements. The following table of sizes is an approximation of our present stock:

<u>Size</u>	<u>Percent of Total</u>
34 Regular	3%
36 Regular	12.2%
36 Long	1.6%
38 Regular	16.6%
38 Long	10.4%
40 Regular	13.2%
40 Long	2.8%

<u>Size</u>	<u>Percent of Total</u>
42 Regular	11.8%
42 Long	7%
44 Regular	14%
44 Long	1.4%
46 Regular	5.5%
48 Regular	.36%
50 Regular	.76%
52 Regular	.8%
56 Regular	.36%

Tool Crib Testing of Portable Electrical Equipment
at time of issue

- A. Presently handled on tester pictured per operating procedures (attached) by Tool Crib Attendants.

Accomplishes the following:

1. Test of ground continuity.
 2. Test of insulation resistance to detect leakage under actual operating conditions.
 3. Physical inspections of cord and attachment plug; in addition, hi-pot tests are scheduled twice yearly at which time approved labels are applied to indicate this fact and when due for re-test.
- B. Previously, above items were handled every sixty days at the tool crib by the electrical test laboratory, however, the efficiency of this system was dependent on the return of such equipment by the user during the test period. Additional tools were picked up from time to time in the field during field inspections of plant facilities.
- C. While the procedure outlined in item "A", above, will provide more safety at less expense, if the tools are checked. It is incumbent on all supervisors to check such items assigned on permanent loan to employees under their jurisdiction. Tools not carrying current inspection labels as well as those with defective cords, attachment plugs, or ground connections should be returned to the issue point for re-check.

~~Emergency will provide safety equipment~~

PLANT ACCIDENT EXPERIENCE - September, 1949

A. Personal Injuries

1. Major Injuries - None

Frequency Rate .00

Severity Rate .18

Man Hours Operated through Month of September - 1,354,027

Man Hours operated since last disabling injury- 1,684,000
(~~at~~ July 31st] - Oct 14, 1949)

2. Sub-Major Injuries - Four (potential frequency 6.17) see report Nos - 23, 24, 25 & 26
3. Minor Injuries - Frequency Rate 251.52

One hundred sixty-three recorded during September; forty-seven percent decrease over the August total of two hundred forty-five, and is the lowest in plant history.

B. No-Injury Accidents

1. Material Releases

Seven reported for the month; one resulted in considerable contamination of the work area. All employees involved were referred to the dispensary and returned to work without apparent injuries. Several cases of exposure were reported, however, employees still minimize the hazard of entering spill areas without using personal protective devices. Bear down on the wearing of such equipment until certain by monitoring and air sampling that the need for wearing no longer exists.

2. Fires and Explosions

Fire loss ratio .006% per \$100 invested capital; total of all industrial operations of the Commission during the first eight months of 1949 was .008%.

3. Motor Vehicle Accidents

Frequency Rate 2.11; four reported; damages of \$182.20 recorded. Cause for the most part still due to failure to check clearance from fixed objects.

4. Property Damage Accidents; damage year to date \$634.33. We burned up a motor during the month of September because the operator failed to check all points of disconnect when leaving the plant at shift change time. Contributory to the employee's failure was the fact that two separate sets of controls were provided for operation of the machine, one on the operating floor and one on the basement. \$100 damage was incurred as a result of the burn out of the motor field.

PLANT ACCIDENT EXPERIENCE, OCTOBER, 1949

A. Personal Injuries

1. Major Injuries - None

Man Hours completed through October 16th 1,684,000

2. Sub-Major Injuries - Two

- a. Maintenance laborer lifting cable weighing approximately 75# in canopy type truck assumed awkward position; while lifting resulting in back sprain;
- b. Process Maintenance mechanic drilling motor frame, while motor was running drill bit slipped contacted motor lead, shorted out motor, see property damage;; mechanic sustained first degree burns right ~~mk~~ hand and wrist.

B. No-Injury Accidents

1. Motor Vehicles - three reported

Estimated damage \$63.80, resulting from failure to check clearance and misjudging distance in turning and entering building.

2. Fires - None

3. Property Damage

Building 310-2, October 14th, while drilling motor at 2B position, mechanic allowed drill bit to slip contacting motor lead, subsequent flash shorted out motor field and burned out motor. Drill bits not provided with stops to preclude contact with energized parts; damage estimated at \$280.00.

4. Material Releases - One recorded

K-302-5 vent line from cold trap developed plug during operation; cold trap unit valved off, plant air supplied to top side of line, plug let go, releasing process material to the ~~roof~~ and subsequently was blown ~~over~~ side of building. Area was isolated and decontaminated. Reason for plug not clearly established; apparently resulted from carbon in alumina traps, which is in violation of operating procedure. Also found two rupture disc blown on cold trap unit; case not determined.

5. Exposure to Oxides of Nitrogen - On October 14th heavy fumes were observed being emitted from dissolving process at K-132; samples were taken and the operation shutdown immediately. Subsequent results showed approximately 900 p.p.m; operator referred to the dispensary for examination; oxygen was administered as a precautionary measure. Unit was being operated in violation of departmental instruction which provided that it be operated only on days when atmospheric conditions were good. This instruction has been renewed and operators instructed in use of proper respiratory protective equipment.

PLANT ACCIDENT EXPERIENCE

Minor Injuries	243
Sub-Major Injuries	2
Major Injuries	0
Non-Tabulatable Major Injuries -	2

Total Occupational Injuries - 245

Sub-Major Injuries (2)

Sub-Major Injury No. 21 - _____ Injured August 2, 1949
 Nature of Injury: Muscle strain, right shoulder and elbow
 Carpenter was removing a hole saw with attached pilot drill 3/8" slit (Kerf) in a 2" x 6" x 8' timber, when the saw and/or drill bit hung; as a result the tool bucked and twisted in a counter-clockwise direction, jerking his arm and shoulder as he tried to hold it in position.

Sub-Major Injury No. 22 - _____ Injured August 25, 1949
 Nature of Injury: Laceration, palmar surface, right hand
 While decontaminating process piping an operator removed his gloves to open a roll of masking tape; as he was using the tape to seal the pipe end, he struck a burr on the outer edge of the pipe resulting in a laceration. Following treatment he was temporarily restricted to "no work around radioactive materials until wound heals".

Non-Tabulatable Major Injuries (2)

Subsequent investigation and medical diagnosis in one case revealed no facts wherein the complaint could be referred to a plant accident, and in the other case, the loss of time was for observation period only and no disability was involved.

Comparative Frequency and Severity Rates

	<u>August 1949</u>	<u>July 1949</u>	<u>Cumulative 1949</u>
Frequency	.00	3.08	1.39
Severity	.06	.03	.03

No-Injury Accidents - 10

Material Releases - none reported
 Fires - none reported

Property Damage - 1

Time and Date of Incident: 4:05 P. M., August 18, 1949
 Location: Railroad Gate No. 89, Guard Tower No. 10, main entrance of railroad at north side of K-25 Plant (Poplar Creek Gate).
 Nature of Incident: Damage to engine, bent sand pipe against wheel; damage to gate, gate post, guide light on gate and warning sign on gate.
 Estimated Damage: \$40.00

Motor Vehicle Accidents - 9 (increase of seven over previous month)

<u>Mileage</u>	<u>August Frequency</u>	<u>August Damages</u>	<u>July Frequency</u>	<u>July Damages</u>
211,752	4.25	\$318.89	.98	109.50

Motor Vehicle Accidents by Division and Responsibility

<u>Division</u>	<u>No. of Accidents</u>	<u>Responsibility</u>
General Maintenance	6	Carelessness on part of operator
Industrial Relations (Plant Protection)	1	"
Process Division	1	"
Electrical and Instrument Maintenance Division (Elec.)	1	"

**PLANT ACCIDENT EXPERIENCE -
September, 1949**

During the month of September, two sub-major injuries were experienced involving employees of the General Maintenance Division, one of which may result in permanent impairment and will in this event, be re-classified to a major injury.

1. Rigger - Back Sprain, occurred September 9, 1949
2. Welder - Laceration and multiple fracture of 2nd digit, right hand, occurred September 9, 1949
possible permanent disability

No-Injury Accidents

1. Material Release

One material release was reported involving a spill of process material in the K-631 Building on September 4, 1949. While disconnecting a cylinder from the manifold connection, the operator was attempting to break the tubing connection to the valve free when the valve body suddenly broke off at the brazed connection to the cylinder. Responsibility of the failure was assigned to design of the valve installation which did not provide sufficient wall thickness in the valve shank.

2. Motor Vehicles

Two motor vehicle accidents were reported, one with minor damage associated therewith, and the other involving approximately \$150.00 damage to the Company vehicle. This occurred at the Scarborough Road intersection at Scarborough school. A receiving department employee driving a pick-up truck was returning to the plant at quitting time from Knoxville; as he approached the school building an

AEC Patrol car (power wagon) pulled out of the sideroad and traveling north, crossed the highway. Skid marks were apparent for 55' on the road surface where the driver of the Company vehicle attempted to stop. Failing to bring his vehicle under control, he smashed into the right rear of the patrol car. Sufficient road surface was available to avoid the collision, however, the company driver made no attempt to swing around the other vehicle, and as evidenced by the skid marks, it is apparent he was traveling at a high rate of speed through a dangerous intersection.

3. Fires

One fire with negligible damage was reported.

4. Property Damage

Operator of a motor generator set on the 1401 Furance Area shut down the equipment at shift change time but failed to open the field supply circuit. During the evening shift it was noted that the machine was hot. The Shift Superintendent's Office checked the equipment and thought the machine to be disconnected, however, the field supply disconnect was located in the basement and not adjacent to the starting controls. On the subsequent shift a re-check was made and the field was found to be badly burned on the DC motor. A maintenance crew was dispatched to cut all leads clear as the location of the disconnect was not discovered.

SAFETY MEETINGS

Emphasis will be directed to the inclusion of contamination and radiation hazards as items for consideration in good housekeeping practices. Discussion material and guides for housekeeping committee members are attached.

MAN HOURS

A total of 914,792 man hours have been worked since the last disabling injury on July 31st.

CARBIDE AND CARBON CHEMICALS CORPORATION

K-25 Plant
Oak Ridge, Tennessee
September 15, 1949

TO: Central Safety Committee

Subject: DISPOSAL OF HAZARDOUS PLANT WASTES

The General Maintenance Division at present disposes or assists in the disposal of some of the hazardous plant-waste materials. Specific approved methods or procedures for this work are needed to insure (1) safe handling methods, (2) conformance with laws concerning pollution of streams, etc., and (3) that the disposal shall be complete with possible future hazards properly indicated, the material isolated, etc.

By invitation the following Division representatives met on September 8 to discuss this problem and submit preliminary recommendations:

Mr. K. W. Bahler	Laboratory
Mr. W. J. Schabot	Manufacturing Office
Mr. J. A. Marshall	Process
Mr. B. H. Thompson	Process
Mr. W. L. Richardson	Safety and Inspection
Mr. A. F. Becher	Safety and Inspection
Mr. C. A. Babcock	General Maintenance
Mr. W. S. Jones	General Maintenance

Since the problem is in general plant wide in scope, the group suggested their recommendations be presented to the Central Safety Committee for review and comment. In concurrence we are submitting the following observations and recommendations:

1. MATERIALS INVOLVED:

The materials involved may be typed in the following categories:

- | | |
|---------------|--|
| a. Acids. | e. Radio-active. |
| b. Bases. | 1. Uranium-bearing. |
| c. Poisons. | 2. Beta, gamma. |
| d. Flamables. | f. Compressed gases and defective cylinders. |

2. RECORDS:

A central record or plant log should be maintained, covering disposal of all materials in the above categories excluding below tolerance radio-active materials. The record should contain:

- a. Material identity.
- b. Amount.
- c. Disposal procedure.
- d. Disposal location.
- e. Names of personnel involved.
- f. Date and time of disposal.

3. PROCEDURES:

Safe Practice Procedures should be issued for the disposal of those materials which fall into the above-mentioned categories. Such procedures should (1) define the responsibilities of the using-division and any other division employed as the agency in carrying out the disposal, (2) incorporate the mechanics of satisfying the record or plant-log and (3) thoroughly cover the disposal operation.

If the Committee agrees that these recommendations or any modification of same be carried out, the gentlemen who represented their respective divisions at the above-mentioned meeting have signified their willingness to serve in any capacity the Committee may suggest in accomplishing these aims.

It was not our intention to exclude any interested Division from representation at this preliminary meeting and our apologies are extended to those we have overlooked.


E. C. Bollinger
General Maintenance Division

ECB/CAB/am

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 Plant
Oak Ridge, Tennessee

CENTRAL SAFETY AND HEALTH COMMITTEE MEETING MINUTES
August 16, 1949

Attendance: Mr. E. C. Bollinger ✓
Mr. S. Cromer ✓
Mr. A. P. Dunlap ✓
Mr. J. A. Elkins ✓
Mr. H. R. House ✓
Dr. F. W. Hurd ✓
Mr. A. P. Huber ✓
Mr. J. J. Fritz ✓
Dr. H. F. Henry ✓
Dr. J. S. Lyon ✓
Mr. W. B. Humes ✓
Mr. J. J. McCarthy ✓
Mr. J. P. Murray ✓
Mr. D. H. Riley, Jr. ✓
Plant General Foreman (Represented by
Mr. D. H. Rader) (4) TAYLOR
Mr. R. R. Wolf ✓
R. M. Batch ✓
W. R. Richardson ✓
Mr. A. F. Becher ✓
C. A. BARCOCK

Absent: ~~Mr. R. M. Batch~~ APPROVAL

The meeting of the Central Safety and Health Committee was called to order by Mr. W. B. Humes, Plant Superintendent, at 10:03 A. M., August 16, 1949. The minutes for the July meeting were approved as written.

I. REPORT OF INDUSTRIAL HYGIENE ACTIVITIES - Dr. J. S. Lyon

A. Uranium

1. One positive urinary finding was recorded during the month as a result of industrial health re-check on a machine shop employee. Re-call results were negative.

2. Alpha Count - No positive urinary findings were recorded during the report period.

B. Fluorides

1. One positive urinary finding which was less than the threshold limit of 2/mg/F/L, was reported. This involved an employee of the Fluoroethene Manufacturing Area. Air analyses taken during the month on this operation were all below the maximum allowable concentration. Since this time operations have been curtailed due to lessening of requirements.

C. Mercury

1. There were no positive urinary findings during the report period; however, one border line case was reported for an employee of the Maintenance Shops.

2. Air analyses for the month were negative except for one laboratory area where results were obtained in excess of the maximum allowable concentration due to a material release. However, immediate clean-up was effected and subsequent results were negative.

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D. Carbon Tetrachloride

1. Results of all samples taken were below the maximum allowable concentration.

E. Trichloroethylene

1. Occasional high readings are still being experienced while equipment is being removed from the degreaser installation in the K-1401 Building Special Shops.

F. Zinc Oxide

1. Samples taken in welding operations in the K-1401 Building were all negative.

G. Ammonia

1. Results of samples taken in the K-131 Building were all below the the maximum allowable concentrations.

H. Beryllium

1. All results were below the threshold limit.

II. REPORT OF HEALTH PHYSICS ACTIVITIES - Dr. H. F. Henry

A. Overall Radiation and Contamination Levels

1. The slightly higher average radiation levels are attributed to the renewed operations and lack of decontamination in K-1405 and to the radiation connected with the waste evaporation operations in K-1004-J.

2. The overall level of contamination in the plant seems to be slightly higher than it was during June. The rise is attributed to an increase in contamination in the K-1300 Area, especially in the K-1303 Building where a valve in the rinse loop was left open, and contamination was spread in the building as a result. A continued decrease in level was noted in the Process Maintenance Shops.

B. Air, Water, and Stream Bottom Survey Program

1. In spite of the installation and operation of the evaporator at X-10, the water activity during July was definitely higher than during the preceding month, which was attributed to an uncontrolled discharge from White Oak Creek.

2. There were seven above tolerance air samples reported as a result of continuous air monitoring and eleven such over-tolerance samples for spot samples report, but there is evidence that in only one case personnel failed to wear protective equipment.

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3. Mud samples of Poplar Creek indicated that a concentration of 0.7 p.p.m. of uranium is deposited in the mud of Poplar Creek as compared with the average concentration of 0.3 p.p.m. found in the Clinch River. This is the first time that a significant amount of uranium has been detected in Poplar Creek.

C. Personnel Monitoring

1. A slight decrease in the number of personnel using personnel monitoring devices has been recorded for the month of July. There were no cases of over tolerance exposures to radiation, nor did any employee leave the plant with contaminated hands during July. A slight decrease in the number of personnel showing on-the-job contamination of hands or clothing was observed.

a. Hand Counts

An average of 493 employees used the hand counters daily during July, this being a decrease of 8.7% from those checking hands the preceding month. The apparent decrease is due to the tardiness of several locations in reporting and recording their hand count data. Although fifteen over tolerance hand counts were recorded, all but one were found to be due either to incorrect recording of final counts or to incorrect instrument calibration. In the one valid case the individual concerned reported to the dispensary where a below tolerance count was obtained. It was pointed out that it was extremely difficult to trace down cases of over tolerance hand contamination reflected on the log sheets, in that as much as ten days - two weeks might elapse prior to the time the Radiation Hazards Department had an opportunity to review them.

Action Taken - It was the consensus of the group that the supervisor-in-charge was responsible for checking the log daily and where over-tolerance readings are noted, he should investigate such cases to determine:

- (a) instrument was properly calibrated;
- (b) employee had properly decontaminated his hands prior to leaving the plant, and
- (c) determine if proper precautionary measures are being followed by employees to minimize recurrence of such incidents.

These cases are to be reported to the supervisor involved for any further action, and the facts in each case recorded on the reverse side of the log sheet. The Radiation Hazards Department will spot check such cases to assure proper remedial measures are instituted.

b. Film Badges, Film Rings, and Pocket Chambers

No over-tolerance exposures were recorded during the report period.

D. Radium Sources

1. None of the twenty-six radium sources available in the plant showed any indication of leakage.

E. Special Studies and Investigations

1. Equipment and Tool Surveys

The survey of equipment stored in non-transformer vaults was completed during the month. All items which showed contamination on their surfaces and those whose previous history indicated the possibility of contamination were tagged. Assistance was also given the Tool Department in surveying a large quantity of tools to be surplused.

2. Comparative Ingestion Hazards of UAP

A study was made of the relative hazards of using uranyl-ammonium phosphate after one and two precipitations as a source of uranium as compared with normal uranium. It is concluded that the inhalation hazards are approximately 50% of the hazards for normal uranium, assuming equal amounts of uranium and UAP per unit volume of air. On the other hand, for a given amount of uranium, regardless of the amount of UAP necessary to give that uranium, the UAP was more hazardous by a factor of approximately 1.4. Calculations indicated that, from a radiation standpoint, it is feasible to ship uranyl-ammonium phosphate in thirty gallon drums stored in a boxcar provided the material has been precipitated.

3. Shielding for Radon Plant

Calculations were made to determine the necessary shielding and ventilation required for the radium source to be used as a radon plant for K-25.

4. Uranium Concentration in Plant near K-1300 Area Holding Pond

Samples of algae in the K-1300 Area Holding Pond and flowers growing in the water's edge and three feet from the water were analyzed for uranium content. It was found that these materials had concentrations of from 400 to 5000 times the uranium concentration of the water. This compares with the uranium concentration in the mud bottom of the pond which was approximately 200 p.p.m. and consequently about 10,000 times the concentration of uranium in the water itself.

III. REPORT OF SAFETY ACTIVITIES - Mr. A. P. Dunlap

A. Personal Injuries

1. During the month of July two hundred and one occupational injuries were sustained by employees of the K-25 Plant as compared to two hundred and seventy-two during June. Of the total injuries this month, two resulted in loss of time; one necessitated temporary assignment of the injured to other regularly established work due to severity of the injury, and one hundred and ninety-eight required first aid treatment only.

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2. The accident reporting efficiency for the plant this month is down. with only a total of 93% of the accidents being reported to the Safety Department in time to be included in the monthly report. The following divisions had reports outstanding:

Process Division	9 Reports
General Maintenance Division	3 Reports
Electrical and Instrument Division	1 Report

3. Major Injuries

a. Within the last seven days of July the "safety train" was derailed twice. The first one occurred July 25th (Major Injury No. 18, Rigging Department, compound fracture, left wrist), and the second on July 31st (Major Injury No. 20, Barrier Plant, crushing laceration of small and ring finger, left hand). As a result of these two accidents a frequency rate for the month of 3.08, and a severity rate of .03 was recorded. This reflects a substantial increase over any previous month this year. The cumulative frequency and severity rates for 1949 are 1.58 and .02, respectively.

b. As of July 24th the plant had operated 1,244,988 accident free man hours (58 days - since May 28th). However, this record was broken by occurrence of a disabling injury on July 25th. The following plant divisions are continuing to exceed their best previous records established in operating without a disabling injury:

<u>Division</u>	<u>Days Operated Without a Disabling Injury</u> <u>June, 1949</u>	<u>July, 1949</u>
Industrial Relations	935	966
Laboratory	469	500
Manufacturing Offices	337	368
Engineering Development	343	374

B. No-Injury Accidents

1. Material Releases

Two material releases of radioactive, and one of toxic material was reported during July. Employees involved were referred to the dispensary for examination. No apparent injury resulted.

2. Property Damage Accidents

No property damage accidents were reported during July.

3. Motor Vehicle Accidents

The motor vehicle accidents continue to show a decrease compared with the previous quarters reported for 1949. There were two this month with a total loss of \$109.50. The frequency rate for this month is .98 as compared to 1.38 in June.

4. Fires

One fire occurred during the month when the insulation burned from a short circuited wire on a plant vehicle. Damage was estimated at \$3.00. Total fire loss to date is \$225.00; fire loss ratio for this month is .000%, year to date .007% per \$100 invested capital, which compared with the national average of 1.5 - 2.0% per \$100 is a noteworthy achievement.

IV. OLD BUSINESS

A. Treatment of Re-Circulating Water

1. Results of analyses of the water at the re-circulating water cooling towers were reviewed by the Medical Department with the Superintendent's Group and it was recommended that no further action be taken in this regard as no health hazard was apparent.

B. X-Ray Exposure Records

1. Dr. Henry reported that representatives of the Radiation Hazards and Medical Departments were establishing standard levels of radiation dosage for the various types of plant x-rays taken, so that a complete history of the employees radiation exposure could be obtained by review of the medical records. It was further agreed that film badges would not be worn by employees during routine x-rays at the dispensary.

C. Safety Spectacles

1. The proposed procedure for handling and issuance of safety spectacles at the K-25 Plant has been distributed to the Central Safety Committee members for their review and approval. Comments thereon will be combined into a final draft to be presented at the next Superintendent's meeting.

V. NEW BUSINESS

A. Safety Awards - UCC

1. Mr. Dunlap displayed the bronze bar received from the UCC Safety Division Head as a result of the recent record established during the period March 15th through May 16th, at which time employees of the K-25 Plant operated 1,502,012 accident free man hours. He recommended that consideration be given to having this award for K-25 presented at the First Aid Meet to be held on September 17th inasmuch as the three plants in Oak Ridge had qualified for such awards during the past fiscal year.

Action Taken - It was agreed that mention of the UCC Safety Award should be made at the First Aid Meet, and that Mr. A. F. Tyra should be invited to be present for a short talk on the three Oak Ridge Plants' safety performance for the past year.

B. Summary of Usage of Protective Clothing

1. Usage of work gloves at the K-25 Plant was called to the Committee's attention in a report, and discussed in the meeting of April 12, 1949. Since this time the Safety Department has compiled monthly usage figures by departments, on quantities and types used in an effort to reduce misuse. This has been discussed with the divisions concerned. In addition, the types of gloves required for plant jobs has been reviewed with the divisional committees in an effort to establish working inventories consistent with plant needs. No attempt is made by the Tool Crib attendants to screen tool issue slips initiated by the supervisor, and it should be remembered therefore that sole control over the types of gloves issued an employee rests with the supervisor. This point as well as the basis for exchange of work gloves, i.e., either worn out or contaminated to over tolerance, should be re-emphasized. While a decrease is noted in quantities issued - 3002 May, 2901 June, and 1565 July - we are continuing to receive approximately 65% of the total returned which are re-usable.

Action Taken - Mr. Humes requested committee members to review usage of this equipment with their supervisors and follow-up to bring usage figures in line with work requirements. In addition, he requested that this item be reported on monthly by the Safety Department.

C. Company-Union Safety Committee

1. Mr. Dunlap reported that Messrs. J. A. Marshall, R. A. Winkel, and K. Bahler had been appointed to serve as Company representatives on the above mentioned committee. Mr. Bahler will assist in guiding the meeting in view of his past experience in this regard. Safety and Inspection Division representatives will be available for advice as requested, however, will not be listed as members of the committee. It is expected that membership on the committee will be rotated. Union representatives have not as yet been reported to the Company, and activation of the committee is being held in abeyance until such appointments are made.

D. State of Tennessee Regulations on Boiler Construction and Operation

1. Mr. Richardson briefly reviewed the provisions of a bill introduced to the State Legislature and passed during the April meeting which prescribed rules for the construction and operation of boilers. He pointed out that the bill exempted boilers under federal control, and that this point was being considered to determine if this exemption applied to the K-25 Plant. Mr. Humes requested that the regulation be reviewed with Messrs. Riley and Murray as well as representatives of the TVA to determine what our policy should be in this regard.

E. Emergency Squad Manual

1. Mr. Dunlap exhibited a manual recently completed as a training guide for use of the emergency squad to familiarize themselves with the types of hazards encountered in the handling of emergencies at the K-25 Plant. He stated that consideration was being given to adding an introduction which would emphasize the responsibilities of operating groups for handling emergencies as they occur, with assistance being secured from staff groups if required.

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Mr. Humes suggested a review of the practices in other units of the Corporation be made, and comments thereon forwarded to Mr. Wolf, and further requested an opportunity for review of the manual before release.

F. Traffic Problems

1. Dr. Hurd reported the following traffic problems outside of the plant controlled area had been brought to the attention of the Laboratory Divisional committee. He requested that action thereon be discussed with the proper AEC authorities.

a. No traffic control is available at the intersection of the road from Wheat Schoolyard and the Oak Ridge Turnpike. Comments of the committee were that (1) single line of traffic be maintained at this point, or (2) patrolmen be provided at shift change time, or (3) surface of the road be widened to take care of converging traffic at this point. Mr. Humes reported that the AEC Security Division had indicated that a patrolman would be provided at this point, and requested Mr. Dunlap to follow-up with Chief J. S. Davis.

b. Provide stop sign at the junction of White Wing Road and the Oak Ridge Turnpike on the "Y" approach for east bound traffic. It was reported by the Safety Department that this had been discussed with Chief Davis who had promised action. This should be followed up immediately.

c. Traffic control at the security gates to the controlled area was inconsistent. It appears that intervals of speeding up and then slowing down of traffic was being practiced by the patrolman, which was confusing to the motorist and might present a hazard. It was the feeling of the committee that this did not present a safety hazard, but the matter could be discussed with Chief Davis in an effort to smooth out traffic flow.

d. Pedestrian Traffic, K-1401 - K-1035 Building was creating a problem at shift change time due to heavy volumes of vehicular traffic and pedestrian cross traffic without proper crosswalk facilities. It was reported by the Safety Department that provision of crosswalks was on the schedule of the Plant Engineering Division for completion; however, the co-operation of all employees should be encouraged through safety meetings and on-the-job discussion to minimize this hazard.

The meeting adjourned at 11:10 A. M.

A. P. Dunlap
A. P. Dunlap, Superintendent
Safety and Inspection Division

AFB:mrh

cc: Mr. C. E. Center
Mr. T. E. Lane
Mr. O. Rinehart
Mr. C. N. Rucker
Dr. C. E. Larson

A G E N D A

CENTRAL SAFETY AND HEALTH COMMITTEE MEETING

August 16, 1949

- A) Review of Minutes of Last Meeting (July 12, 1949) - Mr. W. B. Humes
- B) Review of Industrial Hygiene Activities - Dr. J. S. Lyon
- C) Review of Health Physics Activities - Dr. H. F. Henry
- D) Review of Safety Activities - Mr. A. P. Dunlap
- E) Old Business
 - 1) X-Ray Exposure Records - Dr. H. F. Henry
- F) New Business
 - 1) AEC Statement on Safety Records - Mr. W. B. Humes
 - 2) Presentation of UCC Bronze Plaque - Mr. A. P. Dunlap
 - 3) Brief Review of Protective Clothing Usage - Mr. A. F. Becher
 - 4) Company-Union Safety Committee - Mr. A. P. Dunlap

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 Plant
Oak Ridge, Tennessee

CENTRAL SAFETY AND HEALTH COMMITTEE MEETING MINUTES
July 12, 1949

Attendance: Dr. C. K. Beck Mr. W. B. Humes
Mr. E. C. Bollinger Mr. J. J. McCarthy
Mr. A. P. Dunlap Mr. D. H. Riley, Jr.
Mr. J. A. Elkins Plant General Foreman (Represented by
Mr. G. A. Garrett Mr. D. H. Rader (4)
Mr. H. R. House Mr. R. R. Wolf
Dr. F. W. Hurd

Dr. H. F. Henry Mr. A. F. Becher ✓
Dr. J. S. Lyon

Absent: Mr. R. M. Batch Mr. J. P. Murray
Mr. S. Cromer Mr. W. L. Richardson
Mr. A. P. Huber

The meeting of the Central Safety and Health Committee Meeting was called to order by Mr. W. B. Humes, Plant Superintendent, at 10:05 A. M., July 12, 1949. The minutes for the June meeting were approved as written.

A. Report on Industrial Hygiene Activities - Dr. J. S. Lyon

1. Uranium - During the month of June, five positive urinalysis were recorded, four of which were results of Industrial Health Re-Checks and one associated with a material release. These involved employees in the Laboratory, Maintenance, Process and Engineering Development Divisions.

2. Alpha Count

a. The urinary alpha count taken during the period were all below the tolerance value of 2/c/m/100 ml.

b. Air analysis taken at the K-131 and K-631 Buildings were negative.

3. Fluorides

a. Urinary findings in three cases were above 1.5/mg/F/L, two of which involved employees in Fluoroethene Manufacturing and one Instrument Department employee during Industrial Health Re-Checks, and one employee in the Engineering Development Division as a result of a material release.

b. Air samples taken in the Polymerization Room were all below the maximum allowable concentrations.

4. Carbon Tetrachloride - All samples taken were well below the maximum allowable concentrations for this type material, which indicates an excellent job has been done in the K-1030 Building to reduce the levels of air contamination.

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5. Mercury

- a. Urinary - All findings were below the range associated with damage.
- b. Air samples taken were within the maximum allowable concentration.

6. Trichloroethylene

a. Occasionally air samples in the K-1401 Degreaser Units indicated above tolerance levels. The highest levels noted were the result of leaks in the system under the unit. Corrective action is being initiated to repair piping.

b. Air analysis at the K-413 Building were all below the maximum allowable concentrations.

c. Air analysis taken at the K-402-1 Building during degreasing operations on maintenance jobs exceeded the maximum allowable concentration but due to the short interval of exposure, no corrective action is indicated.

7. Hydrogen Cyanide - All samples were negative.

8. Zinc - All samples were below the maximum allowable concentration.

9. Phosgene - All results were negative.

10. Beryllium - All results were negative.

11. Lead - All results were negative.

12. Plutonium - All were within the tolerance level for this type material.

B. Report of Health Physics Activities - Dr. H. F. Henry

1. Overall Radiation and Contamination Levels

a. The overall level of contamination in the plant, as shown by spot audits in various locations, is approximately the same as for the preceding month. Although there are evidences of improved conditions in the K-101 Building, the Process Maintenance Shops, and in various maintenance jobs, there are also indications of higher contamination levels in the K-1301 Oxide Weighing Room, the K-1410 Decontamination and Storage Area, and the K-1410 Tank Room.

b. The overall intensity of penetrating radiation showed a decided increase during the month over the level noted in May. This increase is principally due to several particularly "hot" operations performed in the K-1004-J Radiochemical Laboratory. There was also a slight increase in the radiation level in the Wet Chemistry Section and a small decrease in the K-1301 Electrochemical Section.

July 12, 1949

2. Air, Water and Mud Survey Program

a. The water activity during June was definitely lower than during the preceding month. There were 20 above tolerance air samples reported from continuous air monitoring but there is no evidence of exposure of personnel. There are no significant reports from the mud program.

(1) Air - The 11 locations from which reports were received are the same as those noted last month plus the K-631 Tails Withdrawal Room. Reports were not received from the K-306-7 SS Area, and the air sampler which is normally used in K-1410 had not been returned from the maintenance shops. Seventeen over-tolerance air samples were reported from the K-1405 Building, and three from the K-1301 Oxide Conversion Room. One of those in the K-1300 Area had a count of 57.1 c/m/ft³. However, in all cases where over-tolerance air samples were reported, there is no evidence of exposure of personnel since respiratory equipment is worn. In addition, 38 alpha and 11 beta spot air samples were taken during June. Of these, one beta and seven alpha samples indicated above tolerance conditions. The beta and two of the alpha readings were observed in the K-1405 Vibrator Room and the others occurred during the buffing of a settling tower in the K-1303, a seal change in K-302-2, ferrule removal at K-1401, and the separation of C-816 and C-616 in K-101.

(2) Water - A peak of 116 c/m/100 ml was reached at K-25 on June 5. The water activity returned to normal on June 9, probably as a result of the installation of an evaporation tray which was put into operation at K-10 on June 6. The maximum peak since that date has been 70 dis/min/100 ml.

(3) Mud - No significant results have been reported for the mud survey program.

3. Personnel Monitoring

a. Increases in the number of personnel taking part in the hand counting program and in those using pocket chambers were noted. No radiation exposures were reported, but there is evidence that five individuals left the plant with their hands contaminated while one had the contamination removed at the dispensary. The number of personnel showing on-the-job contamination of hands and clothing is above the corresponding average for May, but approximately the same as during previous months.

(1) Hand Counting - An average of 536 employees checked their hands daily on a routine basis during June, this being an increase of 10% over the May number. Of the twelve over-tolerance conditions which were reported, six were found to be due to failure to report final below tolerance counts and to instrument failure. Of the remaining six, an investigation of three had not been completed. One person reported to the dispensary where his final over-tolerance count was removed but two others left the plant without reducing their hand counts to below tolerance values. Of the 112 employees

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spot checked for alpha contamination during working hours, an average of approximately 22% had contamination of hands or working clothing. Approximately 25% of those having shoe contamination were wearing their own personal shoes. A survey period is under consideration wherein all hand counting facilities will be checked daily to determine calibration of instruments and to note any over-tolerance readings as will be reflected on the log record. Where such are indicated immediate investigation will be initiated with the supervisor concerned to determine conditions under which contamination was incurred as well as to check on employee cooperation in reducing count prior to leaving the plant, inasmuch as employees are alleging that final hand count was reduced but not recorded. Supervisors should make adequate checks routinely to determine that employees are not leaving the plant without proper scrub up.

(2) Film Badges - An average of 282 film badges were used during the month. No exposures above the 500 mrep per week tolerance were reported, but 55 exposures, or 7% of the total, were between 30 and 500 mreps.

(3) Film Rings - An average of 73 film rings, the same number used during May, were in use during June. The single over-tolerance exposure reported was found to be due to the exposure of film to light. However, a total of 74 exposures between 30 and 500 mrep were found, this being approximately 25% of the number of rings used and a reduction of 22% from the number of exposures in this range reported during May.

(4) Pocket Chambers - An average of 186 pocket chamber pairs were used during the month and no readings greater than 50 mr/day were reported. Two hundred sixty-four readings in the 5 to 50 mr/day range, constituting approximately 7% of the total number of pairs used, were recorded.

(5) Urine Results - Three urinary findings of more than .01 mg of uranium per 100 ml were found during June. Two of these were detected on industrial re-checks and one was the result of a material release.

4. Radiation Survey Instruments

a. The number of radiation survey instruments available for plant use has not changed during June. The following instruments are available:

Alpha Survey Instruments -	179
Beta Gamma Meters -	105
Hand Counters -	13
Air Samplers -	36

Six neutron pocket chambers were received for use in the laboratory during the past month.

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5. Routine and Continuing Programs

a. Radium Sources - One new radium source was received during June and has been checked and placed in an aluminum source holder. None of the 26 sources available in the plant showed any indication of leakage.

b. Material Release - There were two significant material releases involving uranium material during June. One employee was sent to the dispensary after a release of process gas in the K-1405 Design and Development Building and showed positive urinary findings but the single employee sent to the dispensary in the case of a material release involving UF_6 in K-1004-J Laboratory did not give any positive urinary findings.

c. Educational and Promotional - Standard Practice Procedure No. 315 regarding the tagging of radioactive locations and equipment became effective June 1. Posters on the Safety Bulletin Boards and on the large plant display boards were directed toward the encouragement of proper tagging procedures throughout the plant. Eleven safety meetings including four divisional meetings were covered by radiation hazards personnel to aid in interpretation of the tagging procedure.

6. Special Studies and Investigations

a. Equipment Survey in Non-Transformer Vaults - A program of checking the equipment in the non-transformer vaults has been instigated and Vaults 1A, 2A, 3A, 6A, and 12 A were checked during June. Over 50% of the equipment in Vault 6A was found to have transferable wipe activity and Vaults 12A and 3A also showed some activity. Vaults 1A and 2A showed very little, if any, contamination.

b. Surplusing of Contamination Equipment and Material - A meeting held among representatives of the Manufacturing Office, the Process Division, and the Safety and Inspection Division helped clarify plant policy with regard to surplusing of equipment and material from the K-25 Plant.

c. Tool Monitoring - An investigation and audit of the tool monitoring program in the tool room revealed that correct procedures are being followed and that only 0.3% of the tools checked had measurable contamination. These checks were conducted on the tools in the bins for uncontaminated items.

d. Pan Furnace in K-1410 - The newly installed pan furnace located in K-1410 has been found to allow the escape of smoke into the building. Air samples have been taken at various locations in this building, but results have not as yet been obtained from the laboratory.

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C. Review of Safety and Fire Prevention Activities - Mr. A. P. Dunlap

1. At the close of the month minor injury reporting reflected an increase over the preceding month with a total of 267 minor injuries reported for first aid treatment at the dispensary. This increase might be attributed to increased emphasis on injury reporting by plant supervisors; however, the total for the past quarter reflects an increase over the preceding quarter. No major injuries were experienced during this period and the cumulative frequency rate for the year to date of 1.36 and a severity rate of .02 reflects a considerable improvement over the previous years experience when a frequency rate of 3.82 and a severity rate of 0.13 was experienced.

2. Injury Experience

a. Personal Injuries

Two sub-major injuries involving the cases as listed below were recorded as well as two non-tabulatable major injuries wherein injury was alleged by the employee but not admitted by the Company. Subsequent investigation and medical diagnosis revealed no facts wherein the complaint could be referred to a plant accident or the employee's work environment. In addition, the status of one non-tabulatable case previously reported as a sub-major was changed to a major classification when the employee lost time as a result of surgery required to correct a pre-existing physical deficiency.

(1) As three riggers were lowering a 6" x 6" x 20' timber, the man on the one end lost his hold when the shell of the timber crumpled, the timber fell to the ground and the other end bounced from the grasp of the injured striking his left foot, resulting in a simple fracture of left great toe.

(2) A maintenance mechanic routinely checking a pump shaft with an open end wrench to assure it was free, met unexpected resistance to his thrust against the shaft because the exhaust valve was closed holding pressure against pump shaft. This resulted in a strain of right shoulder.

b. Motor Vehicle Accidents

Mr. Dunlap reported that three motor vehicle accidents were reported during the period, with an estimated loss or damage associated therewith in the amount of \$72.00. Recorded mileage for this period was estimated at 251,819; frequency rate therefore is 1.19. He remarked that this is the lowest frequency rate recorded for the year 1949, and reflects satisfactory results are being attained by increased emphasis on prevention of this type accident.

c. Property Damage Accidents

Two property damage accidents were reported which involved the following:

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(1) Damage to sample manifold in the Instrument Maintenance Shop due to rupture of a sample mixing can, estimated at \$25.00 for repairs and replacement parts.

(2) Incident occurred when lightning struck the parapet wall at the north penthouse, southwest corner of K-704 Building. Repair to brick and mortar was estimated at \$73.00.

3. Safety Awards

Mr. Dunlap reported that selection of three suitable awards for consideration by plant employees had been made by a committee composed of eight hourly and weekly salaried employees representing the various plant divisions. These selections were (1) coffee utility table, (2) thermic jub, and (3) outlary sets. Cards were distributed to employees eligible for this award and purchase requisitions were completed prior to June 30th to assure that this item would be included on the budget for fiscal year 1949. Delivery is expected by July 18, 1949. Arrangements for distribution are being handled by Mr. C. H. Williams of Stores Department with each of the divisions concerned, to expedite handling of the bulky items selected locally insofar as is practicable.

I. NEW BUSINESS

A. Plant Tolerances for Radiation Exposures - Dr. H. F. Henry

Dr. Henry reported on a recent trip he made to the University of Rochester to review experimental work and analytical methods used in connection with establishment of radiation health tolerances. He reported that while the tolerances used by the K-25 Plant are slightly higher they are generally in conformity with those of University of Rochester and that further, there was no clinical evidence to date of injuries caused by radiation levels less than 25 roentgen. To date the accepted method for determination of uranium inhalation was by urinalysis method and the following criteria were used:

1. Chronic Exposure - Chronic exposures are checked through a routine Industrial Health Re-Check Program, the established tolerance for normal uranium being .03 ppm. On enriched uranium alpha counting by means of tolerance levels of 75 count per daily excretion (average level of 1500 ml) is used. This is approximately the equivalent of the method of the K-25 Plant using the figure of 5 c/m/100 ml.

2. Material Release Exposures - Dr. Henry reported that experiments indicate that approximately 40 - 70% of inhaled uranium is excreted within a four hour period, 60 - 90% within twenty-four hours, and the remaining quantity at the rate of approximately 1% per day thereafter. The University of Rochester recommended use of a twenty-four hour sampling period in cases of exposure; however, due to the practical considerations involved in obtaining such samples, it was Dr. Henry's recommendation that a four hour sample be taken from which direct calculations of the total uranium exposure could be made. This sample period is predicated upon obtaining total urinary

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excretion of the individual involved. Dr. Lyon, however, recommended we continue to use a one hour figure in that excretion is at its maximum at this time and irrespective of the time interval and other considerations, to date there has been no clinical evidence of damage in connection with such cases.

In regard to this, Dr. Henry indicated that no evidence of total excretion of uranium can be obtained due to the lack of knowledge of the excretion rate of uranium in less than a four hour period. He further emphasized that a random sampling of cases at the K-25 Plant revealed variances from four minutes to five days between the time of material release and analysis of the exposed individual's urine. He pointed out that the value of maintaining quantitative records is not dependent on clinical evidence of damage in that to date there was no evidence of damage as a result of this type of radiation exposure. Mr. Humes made the observations that radiation exposure records are designed primarily to aid in precluding over-tolerance exposure, and secondarily to serve as a record of such exposures. He requested the Medical and Radiation Hazards Group to review the plant procedure in connection with urinalysis methods as well as practices elsewhere in the Commission and that the generally accepted methods of recording such cases be followed by the K-25 Plant.

NOTE: The above indicates some technical differences in analytical methods exists and should not be for discussion purposes throughout the plant.

B. "Calculated Risk" Policy

Mr. Dunlap reported that study was being made in cooperation with the three Oak Ridge Plants and the local AEC representatives to re-evaluate the "calculated risk" policy on shipments of equipment and materials. He indicated that considerable difficulty exists on the plant in making determinations of equipment which had been contaminated or was suspected of being contaminated prior to release to commercial sources.

C. Proposed Policy for Issuance of Safety Spectacles

Mr. Dunlap reviewed briefly a proposal submitted by the Medical and Safety Departments outlining the policy whereby employees would be furnished with safety spectacles in accordance with pre-determined jobs as well as for work in areas where the wearing of such equipment is mandatory. In addition, employees who are classified, as a result of examination, as being industrially blind will be provided with safety spectacles at no cost. Copies of the proposal will be submitted to members of the Central Safety Committee for review and comment prior to issuance.

D. Identification of Compressed Gas Cylinders

Mr. Dunlap reviewed a proposal submitted for identification of compressed gas cylinders, both Company-owned and vendor supplied, at the K-25 Plant. The proposal provided, in general, for a color identification as well as identity

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tag indicating the contents, date received, person whom assigned, etc. Experience in the past has indicated that some unidentified cylinders have been released from the plant and a recent accident involved the rupture of a cylinder that the Laboratory Division had retained on the storage platform for the past three years without having a proper record made of the contents. The proposal should not only provide for easy identification of the material but will assist in the repairs to and disposal of defective cylinders from time to time, as well as minimize possibilities of improper shipments from the plant.

E. Vacuum Cleaners for Recovery of Mercury Spills

Mr. Dunlap reported that design had been completed for modification of a Kenmore Tank type vacuum cleaner for use in recovery of mercury spills, utilizing hopcalit filter and timing device as previously mentioned. Estimated costs is \$245.00. This cost reflects developmental cost incurred for the small number of units which will be required wherein such items as rubber molds, etc. must be included. It was further recommended that three such vacuum cleaners be provided for plant use through the tool crib facilities. This was agreeable to all concerned.

II. OLD BUSINESS

A. Water Treatment to Reduce Beta Activity - Dr. F. W. Hurd

Dr. Hurd reported that the Laboratory Division had made preliminary study of materials and methods which might satisfactorily perform this job; however, no progress had been made to date. The laboratory will continue to study this problem and when positive results are obtained Dr. Hurd will report back to the committee.

B. Treatment of Re-Circulating Water - Dr. J. S. Lyon and Mr. J. P. Murray

In the absence of Mr. J. P. Murray, Dr. Lyon reported that representatives of the Public Health Department, ORO Office of Community Affairs, had made an inspection of the water cooling towers and recommended that samples of the water spray be taken and analyzed. General inspection of the area revealed no evidence of spread of pollution. Any action in this regard will be held pending analysis of the water spray.

C. X-Ray Exposure Records - Dr. F. W. Hurd

Dr. Hurd pointed out that it had been brought to his attention that employees who were receiving x-ray radiation during routine physical examinations were being requested to remove their film badges and he raised the question as to whether or not such exposures were being made a part of the overall radiation exposure record in that it was a type of exposure required by the Company, even though it was normal practice in every day life. Mr. Humes requested Dr. Henry and Dr. Lyon to investigate and determine desirability of including such records

Central Safety and Health Committee Meeting Minutes

July 12, 1949

in the overall plant radiation exposure records which could be done by a simple check on medical examinations given the employees and calculating the radiation dose for each type of x-ray.

The meeting adjourned at 11:20 A. M.



A. P. Dunlap, Superintendent
Safety and Inspection Division

AFB:mrh

cc: Mr. C. E. Center
Mr. T. E. Lane
Mr. C. Rinehart
Mr. C. N. Fucker
Dr. C. E. Larson

A G E N D A

CENTRAL SAFETY AND HEALTH COMMITTEE MEETING

July 12, 1949

- | | |
|--|------------------|
| A. Review of Minutes of Last Meeting (June 14, 1949) | Mr. W. B. Humes |
| B. Review of Industrial Hygiene Activities | Dr. J. S. Lyon |
| C. Review of Health Physics Activities | Dr. H. F. Henry |
| D. Review of Safety Activities | Mr. A. P. Dunlap |
| E. New Business | |
| 1. Report of Trip to Rochester for purposes of reviewing experimental work and analytical methods for establishment of health tolerances | Dr. H. F. Henry |
| 2. Review of "Calculated Risk Policy" for Off-Plant shipments of materials and equipment | Dr. H. F. Henry |
| 3. Discussion of proposed policy for provision of Safety Spectacles | Mr. A. P. Dunlap |
| F. Old Business | |
| 1. Water treatment to reduce beta activity | Mr. F. W. Hurd |
| 2. Treatment of re-circulating water | Mr. J. P. Murray |

WJ recovery cleaner
cylinder identification
Safety Spectacles

SAFETY ACTIVITIES - July 1949

During the month of July two hundred and one occupational injuries were sustained by employees of the K-25 Plant as compared to two hundred and seventy-two during June. Of the total injuries this month, two resulted in loss of time; one necessitated temporary assignment of the injured to other regularly established work due to severity of the injury, and one hundred and ninety-eight required first aid treatment only.

The accident reporting efficiency for the plant this month is down with only a total of ninety-three percent of the accident being reported to the Safety Department in time to be included in the monthly report. The following divisions had reports outstanding:

Process Division	9 Reports
General Maintenance Division	3 Reports
Electrical and Instrument Div.	1 Report

Major Injuries - Within the last seven days of July the "safety train" was derailed twice. The first one occurred July 25th (Major Injury No. 18, Rigging Department, compound fracture, left wrist), and the second on July 31st (Major Injury No. 20, Barrier Plant, crushing laceration of small and ring finger, left hand). As a result of these two accidents a frequency rate for the month of 3.08 was recorded. This reflects a substantial increase over any previous month this year. The cumulative frequency & severity rates for 1949 are 1.58 & 1.01 respectively.

As of July 24th the plant had operated 1,244,988 accident free man hours (88 days - since May 28th). However, this record was broken by acceptance of a disabling injury (Major Injury No. 18) on July 25th. This marks the third time the K-25 Plant has operated in excess of 1,000,000 man hours without a disabling injury during the calendar year. The frequency is ~~1.58~~ *1.58* of Plant Divisions ~~are continuing to exceed their best previous records established in operating up to a disabling injury~~.

No-Injury Accidents

1. Material Releases - Two releases of radioactive, and one of toxic material was reported during July. Employees involved were referred to the dispensary for examination. No apparent injury resulted.

2. Property Damage Accidents - No property damage accidents were reported during July.

3. Motor Vehicle Accidents - The motor vehicle accidents continue to show a decrease compared with the previous quarters reported for 1949. There were two this month with a total loss of \$109.60. The frequency rate for this month is .98 as compared to 1.38 in June.

4. Fires - One fire occurred during the month when the insulation burned from a short circuited wire on a plant vehicle. Damage was estimated at \$3.00. Total fire loss to date is \$226.60; fire loss ratio for this month is .000% - year to date .007% per \$100 invested capital.

Overlain

Ind. Rel.

Lab

Mfg. Office

Eng'g Department

435

469

337

343

960

500

368

274

which compared with the national average of 1.5-2.0 per 100 is a record achievement!

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 Plant
Oak Ridge, Tennessee

CENTRAL SAFETY AND HEALTH COMMITTEE MEETING MINUTES
June 14, 1949

Attendance: Mr. R. M. Batch Mr. W. B. Humes
Dr. C. K. Beck Mr. J. J. McCarthy
Mr. E. C. Bollinger Mr. J. P. Murray
Mr. S. Cromer Mr. D. H. Riley, Jr.
Mr. A. P. Dunlap Plant General Foreman (Represented by
Mr. J. A. Elkins Mr. A. A. Forseman) (4)
Mr. H. R. House Mr. R. R. Wolf

Dr. J. S. Lyon Mr. W. L. Richardson
Dr. H. F. Henry Mr. A. F. Becher
Mr. O. W. Bernheim

Absent: Mr. J. J. Fritz Dr. F. W. Hurd
Mr. A. P. Huber

The meeting of the Central Safety and Health Committee was called to order by Mr. W. B. Humes, Plant Superintendent, at 10:02 A. M., June 14, 1949. The minutes for the May meeting were approved as written.

I. OLD BUSINESS

A. Sanitary Water Treatment - Dr. F. W. Hurd

Action on the above was postponed until the next meeting due to the absence of Dr. Hurd from the plant.

B. Radiation Monitoring at Tool Crib Issue Points

Dr. H. F. Henry reported that a satisfactory procedure had been worked out with the tool cribs whereby all equipment handled by the K-303-4 Tool Crib is monitored and contaminated items are separated from non-contaminated items and processed in accordance with plant procedure. The tool crib at the K-1401 Building conducted spot checks on items handled by them. Results of an overall survey on 3,000 individual items indicated only seven were contaminated. This item is considered to be under control at the present time.

C. Charge Against Using Departments for Items of Protective Equipment

Mr. J. A. Elkins reported that a study of the procedure followed for the issuance and control of all items of personal protective equipment did not reveal a practical means for charging to using departments. He indicated the major difficulty connected therewith was the re-issue of used items to many departments and that he knew of no equitable method for distributing costs. It was the consensus of the group that no further action should be taken; however, spot checks should continue from time to time to assure that equipment is not misused.

II. NEW BUSINESS

A. Industrial Hygiene Activities - Discussed by Dr. J. S. Lyon

1. Uranium - During the month of May three positive urinary findings were recorded on the plant, one of which involved an employee who was in the vicinity of a material release; two were picked up on industrial health re-checks. Clinical examinations revealed no damages associated therewith.

2. Alpha Count - One positive alpha count which was below the threshold limit was picked up on industrial health re-checks involving an Uranium Control employee.

3. Air samples taken during the month were below the threshold limit established for uranium based upon its chemical toxicity. Positive results were obtained in the K-1024 Building during a transmitter dismantling operation; one in Room 12, K-1004-D, as a result of a material release and one in the K-131 Building.

4. Fluorides

a. Four positive urinary findings were recorded on employees during routine industrial health re-checks. These involved three employees in the fluorothene manufacturing area and one in the Process Maintenance Department. One of the above exceeded the normal urinary excretion rate for this type of material. Dr. J. S. Lyon reported that careful study was being made of the involved employees in the K-413 Building and if urinary findings remained below 2/mg/F/L, consideration would be given to raising the threshold limit for this type of exposure.

b. Air analysis taken in the Polymerization Room, K-413 Building, indicated 50% of the total were below the maximum allowable concentration with a high peak of 166 ppm and the remainder being below 30 ppm. Protective equipment was worn during operations where high results were obtained.

5. Hydrogen Fluoride - All samples taken during the month were below the maximum allowable concentration.

6. Carbon Tetrachloride - Only two of the samples taken during the month were above the maximum allowable concentration. These occurred in the K-1030 degreasing operation and following installation of plywood covers all subsequent results were below the maximum allowable concentration.

7. Mercury - One positive urinary finding was picked up on routine industrial health re-check. This involved an employee in the Vacuum Pump Shop. An attempt is being made to determine the conditions of the exposure. All air samples taken during the month for mercury were below the maximum allowable concentration.

8. Trichlorethylene - Results obtained on the large degreaser operation in the K-1401 Building continue to indicate samples at face level in excess of the maximum allowable concentration. It was further reported that ventilation at this facility was as good as could be provided and that the peaks recorded occur during removal of the equipment from the tank. No recommendations to minimize these occurrences were made. Samples obtained

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in the K-413 polymerization area revealed samples in excess of the allowable concentration during transfer of the bombs to the stripping tank. Further analysis will be taken following extension of the present ventilation system to this operation.

9. Nitrous Oxide - All samples taken were below the maximum allowable concentration.

10. Nickel Carbonyl Carbon Monoxide - Samples were taken as a result of a material release in the K-1401 Area one hour after release. Negative results were obtained. Employees involved were evacuated during this period.

11. Beryllium - All samples were below the threshold limit of 5 ppb.

12. Lead - All findings were below the threshold limit.

13. Plutonium - All findings were below the threshold limit.

B. Health Physics Activities - Discussed by Dr. H. F. Henry

1. Spot audits of various locations throughout the plant area revealed that the overall levels of radiation and contamination remained approximately the same as previously reported. A slight increase of contamination in the K-1300 Area is attributed to handling of higher assay material. This increase is offset by a decrease in the contamination level in K-309-5 which is attributable to continued decontamination and clean-up. A significantly higher level of radiation in K-1004-A Laboratory was attributable to handling of more active material. Completion of revisions to hood facilities and other maintenance work in K-1004-J Laboratory resulted in a decrease in the radiation level at this location.

2. Air, Water and Mud Survey Programs

a. Water - During the month of May the average activity of water was the highest noted to date. Beginning on May 6th the beta activity rose steadily to a maximum of 334 c/m/100 ml which was reached on May 16th. By May 24th the activity had decreased to normal but a new rise was noted on May 28th which continued through the end of the month. By June 9th this had again returned to normal. The peaks noted and subsequent decreases were due to the fact that (1) discharge of radioactive wastes by V-10 to White Oak Creek was stopped on May 20th and, (2) installation of the new evaporator at V-10 was completed on June 6, 1949. It has been noted that water activity requires a period of approximately three to four days to return to normal following discharge from V-10 Area.

b. Mud - Nothing of significance to report on the mud survey work at this time.

c. Air - Reports from ten locations where air samples are taken continuously were received. These are for the same areas previously reported with the exceptions noted below:

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Sampling in the K-1401 Tool Grinding Room, K-305-12 Product Cylinder Head Repair Shop and the K-131 Waste Recovery Building was discontinued in April. Reports were not received from the K-631 Shipping Room, K-306-7 SS Area, and the K-141C Spray Tank Area.

During the period ten over tolerance samples were recorded, six of these were observed in the Oxide Conversion Room of K-1301; however, operators are required to wear protective equipment during such operations. The remaining four samples were during unloading of UF₄ in the K-1405 Building. In these cases respiratory protection is required for operators but not for visitors since previously recorded samples have shown but little above tolerance activity. However, on this occasion visitors could have been exposed.

Seventy-one spot samples were taken throughout the plant for alpha activity with a total of seven over tolerance conditions recorded and nine beta samples taken showed one above tolerance condition. Three of the above over tolerance alpha and beta samples were observed in the K-1405 Building. The remainder were due to the buffing of converter shells in K-1303 and tank opening and cleaning operations in K-303-10. In the above operations protective equipment was worn by personnel involved.

3. Personnel Monitoring

a. Hand Counting - An average of four hundred eighty-five employees made routine hand checks before lunch and at the end of the shift during this period reflecting an increase of approximately 7% over previously reported periods. Six cases of final above tolerance counts were recorded, two of which were due to failure to record the final below tolerance readings after wash up but the remainder presumably left the plant with above tolerance hand contamination. Spot checks throughout the plant area for alpha contamination revealed approximately 15% of employees surveyed with contamination on hands or clothing representing a decrease of over 50% from conditions previously reported. Spot checks in the K-302-5 Canteen made on thirty-seven employees revealed 6% with above tolerance hand contamination but none with above tolerance clothing contamination.

b. Film Badges - Two hundred eighty-eight film badges were used each week during the month with two exposures above the tolerance of 500 mrep recorded. Investigation revealed one of these badges recorded 600 mrep beta-gamma and the other 3100 mrep beta; however, did not reveal their cause. Two hundred and nineteen exposed badges were found to be between 30 and 500 mrep which is approximately 19% of the total. This reflects an increase of over 100% for previously reported periods; however, this is felt to be the result of either bad film or a faulty calibration curve at 7-10.

c. Film Rings - An average of seventy-three film rings were used each week, reflecting an increase of 10% over the previous month. Of these one above tolerance result of 720 mrep per week of beta-gamma was recorded. Subsequent investigation did not reveal the cause. An additional over tolerance exposure was found to be due to improper use of the ring. Thirty percent of the total (ninety-three exposed ring films) were between 30 and 500 mrep per week. This increase was attributed to the fact that Y-10 interpretations of the calibration films were not in line with the results desired by the K-25 Technical Section. Accordingly, the K-25 interpretations are now being used. These will yield consistently higher figures than those originally reported from Y-10. Y-10 also plans to use K-25's interpretation in the future.

d. Pocket Chambers - An average of one hundred seventy pairs of pocket chambers or a decrease of 7% from those previously reported were used each week. No readings in excess of 50 mr per day are recorded. However, two hundred eighty-three readings (66% of the total), were between 5 and 50 mr per day.

4. Radiation Survey Instruments

The status in the number of radiation survey instruments being used by the plant has shown a very slight change during the month; these are listed below according to type.

Alpha Survey Instruments	179	Percent Change 0
Beta Gamma Meters	105	Percent Change \pm 6%
Hand Counters	18	Percent Change \pm 6%
Air Samplers	36	Percent Change 0

5. General

a. Radium Sources - Twenty-five radium sources were checked throughout the K-25 Plant during the month and no indication of leakage reported.

b. Material Releases - No significant releases involving the release of radioactive materials were reported during this period.

c. Standard Practice Procedure outlining the responsibilities and procedure for the identification of contamination and radiation was prepared and put into effect on June 1, 1949.

d. The exhaust of a Model No. 66 Airway Vacuum Cleaner was checked to determine activity levels; when properly used below tolerance activity results are consistently obtained. This type cleaner is being recommended for use throughout the plant.

e. New badges being prepared by the Security Department will be provided with a stripe for radiation monitoring in case of a plant emergency and will be put into effect during re-badging of plant employees.

f. Manufacturers of SBS-311 hand soap have changed their formula to include the addition of soda as recommended by the K-25 Plant and are now offering for sale SBS-310 which incorporates our mixture. The new soap is being made available through the Stores Department as a heavy duty decontaminant. Its use has been extended to operations at the Y-12 Plant with satisfactory results to date.

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C. Report of Safety and Fire Prevention Activities - Mr. W. L. Richardson

1. Fire Prevention Activities

a. During the month of May a total of four minor fires were reported with negligible damages associated therewith. There were no significant causative factors which merited further emphasis.

b. Inspection and Clean-Up Week - employees reaction to inspection activities during the clean up week campaign was excellent. In general, all items requiring corrective action were handled immediately by the supervisor concerned. Mr. Richardson recommended more activities of this nature be considered in the future wherein responsibility for periodically checking and inspecting plant facilities to eliminate hazardous conditions be brought closer to all employees in the areas involved, thereby minimizing the need for staff groups in this capacity. He suggested that activities of this nature could be tied into the regular monthly safety meetings or used as supplements from time to time.

c. Fire Water Facilities - Repairs to the storage tank are complete and the tank returned to service. Work is going forward on relocation of fire water lines due to construction of the K-29 Plant.

d. Fire Alarm System - Re-arrangement of work to provide clearance for construction of the new K-29 Plant is underway.

2. Safety Activities

a. At the close of the month minor injury reporting was, in general, at about the same level as the preceding month with a total of two hundred twenty-eight injuries reported for first aid treatment at the dispensary. However, there is evidence that all cases of injuries are not being reported for treatment as noted in observation by a field check throughout the plant. It is significant to note that a sharp increase in total injuries was experienced for the first half of May, culminating in a major injury which broke the continuity of plant operations without a disabling injury on May 16, 1949. During this period a total of one hundred seventy-nine injuries were recorded; however, increased emphasis on elimination of accident causes by all concerned effected control of this sharp increase by the month's end.

b. Injury Experience - Two major injuries were recorded for the month resulting in a frequency rate of 2.80 and severity rate of .03. A comparison with the cumulative experience to date (frequency rate 1.62, severity rate 1.32) reflects a sharp increase in the accident experience. These major injuries involved the following:

(1) A rigger permanently loaned to the Machine Shop was handling a heavy piece of equipment. He misjudged the weight of a test flange which weighed approximately 123 pounds and in attempting to move it by hand rather than by the crane provided, sustained a back sprain resulting in fourteen days loss of time through the end of the month.

Subsequent investigation revealed that in many cases employees were loaned to other departments on more or less permanent basis. Under these conditions neither the supervisor responsible for the employees job performance and training or the loaning department were inclined to accept the responsibility for safety of the employee. It was pointed out during discussion that whenever employees are loaned to other departments the supervisor responsible for the work assignment is responsible for the overall job performance of the employee including the safety aspects of such jobs. If the loaning supervisor is not capable of judging the work performed by such individuals he should request that proper supervision be furnished with labor provided.

(2) This injury involved a laborer who was attempting to slide heavy timbers (8" x 8" x 20') forward on the body of a flatbed truck. He was standing at the rear of the truck and had bent over to grasp the timber and pull it forward. He suddenly lost his balance and pitched forward on the overhang of the timber. The force of his fall swung him underneath the timber and dislocated his shoulder. In determining responsibility for the above injury it was brought out that supervision had failed to properly plan the job and did not have the necessary tools on hand when the work was started. Use of two employees on this job equipped with lug hooks for moving the timber would have precluded occurrence of the above mentioned incident.

c. (3) Motor Vehicle Accidents - Mr. Richardson reported little, if any, progress was being noted in eliminating causative factors resulting in motor vehicle accidents. He pointed out that eight accidents were reported for the month with \$107.00 damages or loss associated therewith. He pointed out further that this is the only type of accident being investigated exclusively by the Safety Staff and that in many cases it is almost impossible to make a proper report to AEC on corrective action taken. In addition, it is necessary that two types of reports be prepared on such incidents for plant use and outside distribution. It was recommended that the drivers report, Form 91, be forwarded to the division superintendent concerned for review and signature as the reviewing official for the K-25 Plant so that prompt remedial measures could be instituted. It was the consensus of the group that the above mentioned procedure would be of considerable assistance and would be effective. Mr. Humes requested that all superintendents bring this to the attention of their staff and emphasize the need for exercising more care in the use of Government equipment to minimize recurrences of this nature.

d. Divisional Records - Mr. Dunlap reported that the Process Division had now operated two hundred six days since their last disabling injury which exceeded their best previous record in the number of days worked; however, it does not exceed the total number of man hours worked previously. He also reported that the Engineering Development Division had completed two hundred ninety-six days exceeding its best previous record on days worked without a disabling injury.

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D. Treatment of Recirculating Water

Mr. Humes requested clarification of a letter which was being circulated relative to the need for treatment of the recirculating water. Dr. Lyon reported that a study had been made by his office which indicated the presence of coloi in such water, indicating stream pollution and a likelihood of typhus germs being sprayed out into the atmosphere was possible. He indicated that the matter had been discussed with the Public Health Department at Oak Ridge and they recommended that treatment of the water should be considered. Mr. Murray stated they were considering installation of a fluculator at the K-25 recirculating water make up supply which, in turn, would be used as make up water for the three plants and if treatment was desirable it should be done at this point. He estimated the cost of a chlorinator to be approximately \$17,000, annual cost of treatment approximately \$11,000. Mr. Humes appointed a committee composed of Messrs. R. M. Batch, J. P. Murray and Dr. J. S. Lyon to review the problem and to make recommendations to the committee within a week for their consideration.

E. Portable Ladders

Mr. Bollinger reported that a study had been made of the cost of building and maintaining portable ladders for plant use. Results of the survey indicated that a cost of approximately \$15,000 per annum was incurred for the construction and repair of such items without considering the cost of the lumber used. He stated that the cost of pick up and delivery presently furnished by the Carpenter Department during the past two weeks had averaged \$20.00 per day, and repairs during the same period (approximately two to three ladders daily) averaged \$11.00 per ladder. He pointed out further that the Maintenance Division had been doing this service in the past due to inability of the plant to purchase ladders of proper design and materials. The accident experience to date had proved the adequacy of the program, however, he did not feel that the program could be justified at present in that shortages no longer existed. He recommended, therefore, that engineering standards be set up for procurement of all types of ladders and that ladders be carried as stock by the Stores Department. Using departments would be responsible for the withdrawal of ladders and should be made responsible for maintaining them in safe operating condition. All ladders should be inspected prior to use and a periodic survey should be made by the Safety Department to determine condition of plant ladders. The Maintenance Division will make repairs in accordance with the work order procedure whenever practical to do so; badly damaged ladders will be salvaged.

Mr. Elkins agreed that Stores Department would be best equipped to handle the distribution of ladders; however, where a stock of ladders was needed for occasional short term loan these would be made available at the Tool Cribbs. Mr. Humes pointed out that operators of each facility should survey their needs to determine what types of ladders were required for routine maintenance work. They should then provide such ladders and suitable storage facilities to maintain them. This would minimize loss of time by the maintenance employee who might not have the proper ladder with him to do the job. It was agreed that this plan be effectuated immediately.

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F. Emergency Plan

Mr. Dunlap reported that the emergency coordinators for the three Carbide plants had met to discuss coordination of plant facilities with the ORO Emergency Plan. He stated that the plants were emphasizing decentralization of control by assignment of responsibility for details and immediate action to the local groups through unit control plans. It is anticipated that responsibility for keeping the unit plans current would be assigned to the various local plant areas concerned. He stated that the Process, Power, Laboratories and Engineering Development Divisions, as well as Utilities Groups concerned, would be contacted in the near future to work out plans for determining what potentialities existed within their various plant areas and prompt thinking along these lines. He emphasized that all emergency assignments would be made with the thought in mind of having local people trained to handle emergencies and that the unit plan would then pyramid from the local area to a point where the plant emergency directors would no longer feel it desirable to pursue action. At such time responsibility would be turned over to the ORO director. Further reports on details of this plan will be made from time to time as they are worked out locally.

The meeting adjourned at 11:40 A. M.



A. P. Dunlap, Superintendent
Safety and Inspection Division

APD:WTR:AFB:mrh

cc: Mr. C. E. Center
Mr. T. E. Lans
Mr. C. Vinehart
Mr. C. N. Rucker
Mr. C. E. Larson

A G E N D A

CENTRAL SAFETY AND HEALTH COMMITTEE MEETING

June 14, 1949

A. Review of Minutes of Last Meeting (May 10, 1949)

W. B. Humes

B. Review of Industrial Hygiene and Medicine

Dr. J. S. Lyon

C. Review of Health Physics

Dr. H. F. Henry

D. Review of Safety and Fire Prevention

~~A. P. Dunlap~~
~~W. L. Richardson~~

E. Old Business

1. Water treatment to reduce beta activity

Dr. F. W. Hurd

~~2. Monitoring of items handled in tool crib~~

~~Dr. H. F. Henry~~

~~3. Expenses for safety equipment - Using Department
versus Tool Stores~~

~~Mr. J. A. Elkins~~

F. New Business

~~1. Safety Awards~~

~~Mr. A. P. Dunlap~~

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SAFETY ACTIVITIES - June 1949

During the month of June an estimated total of two hundred sixty-nine personal injuries were reported to the dispensary for treatment by K-25 employees. In addition thereto seven accidents with no personal injuries associated therewith, but involving damage or loss to company equipment or facilities were recorded. A summary of all personal injuries recorded during the report period is listed below:

- a. Major Injuries - None
- b. Sub-Major Injuries - Two
- c. Minor Injuries - Two hundred sixty-seven

Comparative frequency and severity rates for 1948 - 1949 are as follows:

	BASE PERIOD 10/1/47 - 4/30/48				PREVIOUS SIX MONTHS 12/1/48 - 5/31/49			CURRENT PERIOD June 1949	
	Goal	High	Low	Cum.	High	Low	Cum.	Last Month Actual	This Month Estimated
Frequency	1.50	6.24	1.12	3.62	2.83	.00	1.55	2.80	.00
Severity	.10	2.05	.01	.36	.03	.00	.01	.03	.00

In addition to the above reported injuries there were three non-tabulatable major injuries reported wherein injury was alleged by the employee but not admitted by the company. Subsequent investigation and medical diagnosis revealed no facts wherein the complaint could be referred to a plant accident or the employee's work environment. The status of one non-tabulatable case previously reported as a sub-major was changed to a major injury when the employee lost time as a result of surgery to correct a pre-existing physical deficiency.

At the close of the month the K-25 Plant had operated a total of 740,118 man hours since the last major injury on May 27, 1949.

During the report period seven no-injury accidents involving damage or loss to company equipment or facilities were recorded. These are summarized as follows:

1. Material Releases - Two material releases of a minor nature were reported, and employees involved referred to the dispensary for supervisory examination. No apparent injuries resulted.
2. Motor Vehicle Accidents - A total of three motor vehicle accidents with an estimated loss or damage associated therewith in the amount of \$72.00 were reported. Recorded mileage for this period was estimated at 251,619, and the frequency rate therefor is 1.19. This is the lowest frequency rate recorded for the year '49, and reflects a considerable improvement in the record.

3. Property Damage Accidents - Two property damage accidents were recorded, one of which was in excess of \$50.00. These involved the following:

- a. Damage to approximately six square feet of masonry at north penthouse at southwest corner of K-704 Building was incurred due to lightning on June 9, 1949. Damage was estimated at \$73.00.
- b. Rupture of a sample mixing can resulted in damage to tubing glassware and transite walls in the sample manifold in the Maintenance Shop. Damage was estimated at \$25.00.

4. Fires - No reportable fires were recorded during the month, reflecting continuance of the excellent cooperation of all employees in minimizing fire hazards. The loss ratio for the year to date remains at .004.

SAFETY AWARDS

Selection of the items for the 1949 safety award plan was made by a committee composed of eight hourly and weekly salaried employee representatives of the various plant divisions. On June 14, 1949 as a result of their selections, these included: (1) coffee utility table; (2) thermic jug; (3) cutlery sets, for the selection of the individual employee. Cards were distributed to eligible employees and purchase requisitions initiated for the required number of items of each type. Delivery is expected by the third week of July. Arrangements have been made with Mr. C. H. Williams, Stores Department, who is planning for distribution at locations agreed upon by the various divisions concerned, rather than establishing a central distributing area at the warehouse facility. This will be utilized only for those divisions who do not have facilities for issuing locally.

PROMOTION AND EDUCATION

During the past month safety meetings in the divisions concerned were directed to the tagging of contaminated equipment. Representatives of the Radiation Hazards Department and Safety Department attended various level committee meetings to explain terms of SPP No. 315.

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CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 Plant
Oak Ridge, Tennessee

CENTRAL SAFETY AND HEALTH COMMITTEE MEETING MINUTES

May 10, 1949

Attendance: Mr. R. M. Batch Mr. A. P. Huber
Dr. C. K. Beck Dr. F. W. Hurd
Mr. E. C. Bollinger Dr. J. S. Lyon
Mr. S. Cromer Mr. J. J. McCarthy
Mr. J. A. Elkins Mr. D. H. Riley
Mr. J. J. Fritz Plant General Foreman (Represented by
Mr. H. R. House D. H. Rader) (4)
Mr. W. B. Humes Mr. J. P. Murray

Mr. W. L. Richardson Dr. H. F. Henry
Mr. A. F. Becher

Absent: Mr. A. P. Dunlap Mr. R. R. Wolf

The meeting of the Central Safety and Health Committee was called to order by Mr. W. B. Humes, Plant Superintendent, at 10:05 A. M., May 10, 1949. The minutes for the April meeting were approved as written.

I. OLD BUSINESS

A. Trifluorochloroethylene Exposure, K-413 Building

1. Mr. J. P. Murray reported that additional exhaust facilities had been provided for the primary and secondary stills in the K-413 Polymerization Room and a vacuum chamber was being provided for dumping the still. In addition, a program of leak testing the entire system to minimize leakage is going forward.

2. A re-call schedule is being set-up in cooperation with the Medical Department to review possible physiological effects of frequent exposure to employees in this area.

B. Hand Decontamination

1. Dr. H. F. Henry reported that a soap dispenser provided with a tag indicating they are to be used for hand decontamination are presently available in Stores, and that a mixture of 90% SBS-11 and 20% soda by weight, was available in bag lots. Cost of the dispensers is approximately \$5.00, and the mixture approximately .70¢ per bag, which will provide a filling of a dispenser about one and one-half times.

2. Experiments indicate that hands may be as well decontaminated by 10% soda solution as by a higher percentage, the above mixture therefor should provide sufficient soda to do the necessary decontamination. It should be pointed out that there is evidence that washing the hands with soap alone tends to fix uranium rather than remove it in some cases. The use of the

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the above mixture is therefore recommended for the removal of hand decontamination. Since the mixture is principally soap it could be used for routine hand cleaning; however, until further information is available relative to the health effects of the soda-soap mixture, its' use should be limited to decontamination efforts only.

C. Report by Water Sampling Sub-Committee

1. Mr. A. P. Huber reported that a meeting had been held with the following in attendance: Dr. F. W. Hurd, Dr. J. S. Lyon, Messrs. J. P. Murray, C. E. Newlon and R. F. Perkins, to review the provisions of the Tennessee Stream Pollution Act and AEC Regulations relative to the disposal of industrial wastes.

2. Mr. Huber pointed out that the activities of the AEC are specifically exempt from the provisions of the Tennessee Act. This Act applies principally to the disposal of solids and in this regard the plant has been in general compliance therewith.

a. Analysis on fluorides taken in connection with disposal of uranium indicate this item is under control.

b. Due to minute quantities of other chemicals being disposed of, it has in the past felt to be safe.

c. Bacteria count on sewage disposal is well within the prescribed limits; however, further study will be given to determine oxygen content.

d. Additional samples are to be taken in the future to cover disposal of various contaminants from the disposal pond (1300 Area), pump blow down, and the chemical discharge from K-131.

D. Control of Work Glove Usage

1. Mr. W. L. Richardson reported that work glove usage during the past month had fallen off approximately 20.9%, or a net savings of \$730.00. While there was a general reduction in all work glove usage, it is significant to note that there was a much greater reduction in the use of special leather dress type work gloves due to the increased emphasis placed on the proper use of this type equipment.

2. Dr. Henry reported that a poppy which had been previously installed in the K-303-4 Building had since been removed due to difficulty in maintaining calibration of the instrument on the part of the operators. Presently cribs are provided with Zutos; however, in one of these cribs attendants check only those items which are described as contaminated by the employee, and in the other, practice is to check only those items which are not declared as being contaminated. He indicated that the Health Physics Survey Group would arrange with Mr. D. M. Crymes to have a standard procedure inaugurated for the handling and monitoring of items handled at the issuing tool cribs.

3. Mr. Elkins was requested to report on the feasibility of providing a system to charge each using department for items of protective equipment issued to their employees. He pointed out that presently tools and safety

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equipment are carried as expense items and are expended upon receipt. He further indicated that it would be necessary to change the accounting set-up to place such items in an inventory account which would then mean that each item must be accounted for at the time of close out of the accounts. This would entail considerable work to establish the control measures required. Mr. Humes mentioned that cost control on other items in the plant has been highly effective in the past and requested that further study be given this problem to determine if some effective method such as charging the individual department when such items are written off as would be the case when gloves are worn out, contaminated, etc. could be accomplished.

II. NEW BUSINESS

A. Review of Safety and Fire Prevention - Discussed by Mr. W. L. Richardson

1. Mr. Richardson reviewed the accident experience for the month of April, pointing out that there were no major injuries recorded during this period, and as of this date the plant had worked 1,360,000 man hours without experiencing a disabling injury. At the present schedule the first portion of the plant goal of 1,500,000 man hours will be reached by May 15, 1949.

2. During the same period, three sub-major injuries were recorded which occurred when:

a. A welder walked onto the overhang of a scaffold plank while wearing a welding hood, plank became unbalanced causing him to fall to the floor below. He struck his ankle in falling, and suffered a sprain thereto.

b. An insulator attempting to reach behind a dryer unit to install canvas covering over-reached from a stepladder; thinking the ladder was about to fall, he jumped to the floor, suffering a sprain of the ankle.

c. Laborer reversed the power on a lawn mower without throttling down the motor. As the mower suddenly reversed, the throttle lever caught his hand against an adjacent rail, lacerating the palm.

3. One non-tabulatable sub-major injury occurred during the period involving an electrical mechanic who alleged he incurred a sprain of the back while straightening up after attempting to pick up a length of pipe. There was no unusual act on the part of the individual and no history of an accident was established; the case is therefore carried as a non-tabulatable injury.

4. One non-tabulatable major injury occurred during the period involving an instrument mechanic who alleged he suffered irritation of the respiratory tract while brazing on some painted copper tubing. He did not report his condition until ten days after the alleged incident occurred. In the opinion of the Medical Department the employee's condition was not attributable to the above allegation.

5. In reporting on the accident records by divisions, Mr. Richardson pointed out that the Industrial Relations Division had operated in excess of one and one-half million man hours during the past month without a disabling injury. This record has been attained in the past by both the Process and Power Divisions.

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6. He reported further that during the month of May there were nine motor vehicle accidents experienced with an estimated loss or damage of \$200.00 associated therewith. This type of accident continues to be a major factor requiring concentrated effort on the part of all concerned to further minimize recurrence. Frequency rate to date indicates an increase over the previous years experience.

7. There were five property damage accidents with a total of \$345.00 damage associated therewith, and five fires involving a loss or damage in the amount of \$75.00.

8. Mr. Richardson announced May 8th - 14th as the week set aside for the Plant Spring Clean-Up Campaign. The program for the plant includes:

a. Material for the use of plant supervision which lists the type of predominant factors and ignition sources for plant fires;

b. Lists of questions and answers on fire safety;

c. Self-Inspection Committees are to be appointed by the Division Superintendent concerned who will conduct an inspection of plant facilities;

d. Locker Inspection - A program to cover all plant lockers to check for possible sources of fire hazards as well as contamination and to preclude employees using out of date equipment such as gas mask canisters, and respirator filters has begun.

B. Industrial Hygiene Activities - Discussed by Dr. J. S. Lyon

1. Dr. Lyon reported that Mr. D. L. Stoddard of the Laboratory Division had been transferred to the Medical Department where he will serve as Industrial Hygienist for the Plant. He replaces Mr. W. H. Bauman who has been serving on a part time basis.

2. Urinalysis - One hundred forty-four analysis for uranium were made, one hundred thirty-eight of which were negative, and six indicated traces of uranium. There were two positive urines on re-calls. The remaining four involved three employees of the Process Division who were in the vicinity of a material release and one laboratory employee in the vicinity of a material release. For the first time in plant history all employees checked on the Industrial Health Re-Check schedule came through with negative results.

3. Alpha Count - A total of one hundred forty-seven analysis were made during the month of April, one hundred forty-one of which were less than 2/c/p/m; of the four remaining analyses, only one was above 3/c/p/m level. These involved employees in the Laboratory, Engineering Development and Process Divisions.

4. Mercury - One positive urinary sample was obtained during this period involving a maintenance employee. Of the ninety-six samples, all were below the maximum allowable concentration.

5. Fluorides - There were fifty-eight analyses taken for fluoride during this period, forty-eight of which were below 1 mg/F liter, one was between $1\frac{1}{2}$ mg/F liter, and nine in excess of $1\frac{1}{2}$ mg/F liter. These nine involved employees in Process Division, Fluoroethene Manufacturing Facility. Of the nine air samples taken in the K-413 Building, only one was less than the 10 ppm maximum allowable concentration. However, recent results since installation of auxilliary exhaust facilities are not available at this time.

6. Beryllium - Five analyses were made involving four Fairchild and one Carbide employees. All were below the threshold limit.

7. Trichlorethylene - During this period all analyses made were below the maximum allowable concentration of 200 ppm, except four which were taken inside a cubicle of the 1303 Building. These were in a range between 356 and 700 ppm; however, they were in an isolated area where employees are not normally exposed during working conditions.

8. Carbon Tetrachloride - Forty-two samples were taken during this period, two involved an operation in the K-1231 Building; however, this operation has since been discontinued. Operations at the K-1030 Building revealed twelve samples in a range from 0 - 1780 ppm, twenty-nine 20 - 285 ppm, and three 850 - 1000 ppm. One of the employees working in this area reported to the dispensary complaining of a irritation which he alleged to be referable to exposure to carbon tetrachloride. However, both the Plant Medical Department and the employee's personal physician concurred there was no evidence to support this claim. This operation has since been changed by providing auxilliary exhaust facilities, and the high readings previously recorded during opening up of the motors following cleaning have been minimized by change in operational procedure whereby motors will be set aside for a twenty-four hour period prior to working thereon.

9. Nitrogen Oxide - One analyses was taken in the 1303 Area which was below the maximum allowable concentration.

10. Plutonium - Twelve urinary results obtained on employees of Laboratory J, all of which were less than 3.5 c/pm (alpha).

C. Health Physics Activities - Discussed by Dr. H. F. Henry

1. During the month of April there was no significant change in the level of radiation throughout the Plant but there was a slight decrease in contamination level. The increase in K-1301 and K-1303 is attributed to the fact that higher assay materials are now being handled there. A decrease in the levels in the K-1405, K-131, K-413, and K-1095 is attributed to more frequent decontamination and to the fact that in one location high assay materials are not being used.

2. Air Sampling Program - In the air sampling program there were seven above tolerance readings, all of which were in either the K-1405 Building above the fluorinating vibrator tray or in the reactor room of the K-1301 Building. Jobs that showed high levels of air contamination are the sampling operation in K-101, dismantling booth of K-1303, the vacuum cleaning of surge drums, and pump cleaning operations in K-306-1. The surveyors feel that

Central Safety and Health Committee Meeting Minutes

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the operational difficulty is due to sloppy techniques. It should be mentioned that a hood has been prepared for use in cleaning pumps and that may take care of the hazard associated with this particular job. There is no evidence of personnel exposure during the month.

3. Hand Counting - There are now four hundred thirty-four employees checking hands before lunch and at the end of the shift each day, which is an increase of 20% over March. There were three cases of above tolerance hand contamination reports, but of these two were due to the failure of each employee concerned to record his final below tolerance count, and in the other case the employee did not indicate whether or not he re-washed his hands, so presumably left the plant with contaminated hands. Forty per cent of those spot checked in the plant were found to have above tolerance hand counts, and about the same figure is true for shoe contamination, protective clothing contamination and glove contamination.

4. Film Badges - Approximately three hundred film badges were used each week and no exposures above the tolerance of 500 mrep per week were recorded. However, 8% of the total were between 30 and 500 mrep. An average of sixty-six film rings were used each week. Twenty-six of those were found to have exposures between 30 and 500 mrep per week. The only one above 500 mrep per week was caused by exposure to light. A little over one hundred pocket chamber pairs were used each week and no readings above 100 mr/day were found, but 31% of the total were in the 5 to 100 mr/day range.

5. Radiation Survey Instruments - The number of radiation survey instruments available in the plant has not changed appreciably. At present there are one hundred seventy-nine alpha meters, ninety-nine beta gamma meters, seventeen hand counters, and thirty-six air samplers. A stack monitor for Laboratory J has been installed to monitor the activity of the exhaust air from the stack. The construction of seventeen argon gammagraphs has been started.

6. None of the radium sources were found to leak during the month. Only two material releases were reported and two men were sent to the dispensary in each case for supervisory examinations. Procedures for handling spills and accidents occurring during shipment of radioactive material from K-25 to X-10 were drawn up and put into effect. Penetrating radiation as high as twice tolerance was detected outside the fenced area surrounding the two large radium sources in Laboratory B. Fences will be extended to include all of this over tolerance area.

7. Recently the Medical Department has arranged to forward results of urinalysis to this Department. As a result of one industrial re-check an area was found which was highly contaminated. The surveyor chanced to talk with the employee whose urine first aroused suspicion of the location which was being investigated. His hands were contaminated as shown by a spot check. The gloves were contaminated above 5000 c/m. The employee himself does not think it necessary to keep the place cleaned up, or that it is necessary to check his hands except at the end of the shift. It has been recommended to the supervisor that this area be cleaned up.

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8. Water and Mud Sampling Programs - There is nothing to report on the water and mud survey programs.

D. Enforcement of Use of Safety Glasses

Mr. Richardson asked the Committee to consider the desirability for a standard approach to discipline employees who neglect to wear the proper eye protective equipment in mandatory areas throughout the Plant. Mr. Humes indicated instances of this nature should be handled by the supervisor on an individual basis with guidance from Labor Relations Department as necessary. It was pointed out some employees could not be fitted with Rx type spectacles due to defective vision. In certain cases this requires that the employees be subjected to treatment consisting of eye exercises before they can wear prescription type lenses comfortably. These cases, however, are a minority and will be handled on an individual basis when the need develops.

E. Sanitary Water Treatment

Dr. Hurd suggested consideration be given to further reducing the beta activity recorded in sanitary water effluent for the K-25 Plant. While even peak contamination levels are well below the tolerance value, he felt it wise to further reduce this factor. He pointed out that even though evaporators were being installed at X-10 to minimize further contamination due to their operations, the activity of the White Oak Creek will continue for sometime, especially during flood conditions due to residual contamination. He suggested that an attempt be made to add certain chemicals to the potable water supply to minimize such activity therein. Mr. Humes requested Dr. Hurd to arrange to have the Laboratory work out necessary details to accomplish the above. During the discussion it was pointed out that installation of the continuous analyzers at this facility would provide indications of stream pollution and would allow the operator to by pass such slugs as they are noted by withholding pumping of influent to the system during such periods.

The meeting adjourned at 11:25 A. M.

AFB:mrh



W. L. Richardson
Safety and Inspection Division

cc: Mr. C. E. Center
Mr. T. E. Lane
Mr. O. E. Rinehart
Mr. C. M. Rucker
Dr. C. E. Larson

A G E N D A

CENTRAL SAFETY AND HEALTH COMMITTEE MEETING

May 10, 1949

- A. Review of Minutes of Last Meeting (4/12/49) W. B. Humes
- B. Review of Safety and Fire Prevention W. L. Richardson
 - 1. April Accident Experience
 - a. Injuries
 - b. Motor Vehicle Accidents
 - c. Property Damage Accidents
 - d. Fire and Explosions
 - 2. Announcement of Spring Clean-up Campaign
 - a. Meeting Material
 - b. Self Inspection Committee
 - c. Locker Inspections
- C. Review of Industrial Hygiene and Medicine Dr. J. S. Lyon
- D. Review of Health Physics Dr. H. F. Henry
- E. Old Business
 - 1. Ventilation, K-413 Building J. P. Murray
 - 2. Disposal of Industrial Wastes A. P. Huber
 - 3. Provision of Hand Decontamination Facilities Dr. H. F. Henry
 - 4. Work Glove Usage W. L. Richardson
 - a. Provision of Monitoring Equipment in Tool Crib Dr. H. F. Henry
 - b. Disposition of Glove Cost - Using Department versus Tool Crib J. A. Elkins
 - 5. Enforcement of Use of Safety Glasses W. L. Richardson
 - a. Disciplinary Action
 - b. Disposition of Cases where Rx glasses cannot be fitted

PROTECTIVE CLOTHING USAGE

1. Gloves

the Safety Dept has this been discussed with the divisions concerned

Usage of work gloves at the K-25 Plant was called to the Committee's attention in a report, and discussed in the Meeting of April 12, 1949. Since this time we have compiled monthly usage figures by departments on quantities and types used in an effort to reduce misuses. In addition, we have reviewed the types of gloves required with the divisional committees in an effort to establish working inventories consistent with plant needs. ~~It should be remembered that no attempt is made by the Tool Grip to screen tool issue slips initiated by the supervisor, therefore, the sole control over the types of gloves issued, an employee rests with the supervisor. This point as well as the basis for exchange of work gloves, i.e., (either worn out or contaminated to over-tolerance), should be re-emphasized. While a decrease is noted in quantities issued - 3002 May versus 2901 June, we are continuing to receive approximately 65 % of the total returned which are re-usable.~~

in plant the has been reviewed

2. Coveralls, Masks, Respirators, Etc.

Usage of coveralls at a high rate continues. We are still faced with a need for closer screening of individual needs. It was found that employees were being issued coveralls in contamination areas and no record of such issuance maintained. These employees were found to be hoarding stocks of coveralls in personal lockers and an inspection was made to minimize this possibility. Results were forwarded to the divisions involved.

In general, we find little attempt is made ^{by the individual supervisor} to ascertain usage of such equipment as related to job requirements. In addition, ~~emphasis should be placed on return of equipment such as respirators, masks, etc. following use, to while use of items such as gloves should be on the basis of permanent loan and return based upon contamination or wear.~~

assure of camera replacement on established schedule.

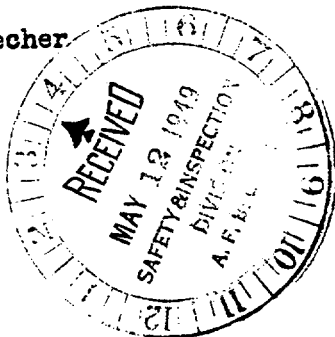
INTER-COMPANY CORRESPONDENCE

Post Office Box P
OAK RIDGE, TENN.

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION _____

TO Mr. A. F. Becher.
LOCATION K-1034

ATTENTION
COPY TO File



DATE May 12, 1949

ANSWERING LETTER DATE

SUBJECT Report to Central Safety
and Health Committee -
Radiation Hazards Department

Section I

During the month of April there was no significant change in the level of radiation throughout the plant but there was a slight decrease in contamination level. The increase in K-1301 and K-1303 is attributed to the fact that higher assay materials are now being handled there. A decrease in the levels in K-1405, K-131, K-413, and K-1095 is attributed to more frequent decontamination and to the fact that in one location high assay materials are not being used.

In the air sampling program there were seven (7) above tolerance readings all of which were in either the K-1405 building above the fluorinating vibrator tray or in the reactor room of the K-1301 building. Jobs that showed high levels of air contamination are the sampling operation in K-101, dismantling booth of K-1303, the vacuum cleaning of surge drums, and pump cleaning operations in K-306-1. The surveyors feel that the sampling operation difficulty is due to sloppy techniques. It should be mentioned that a hood has been prepared for use in cleaning pumps and that may take care of the hazard associated with this particular job. There is no evidence of personnel exposure during the month.

There is nothing to report on the water and mud programs.

There are now 454 employees checking hands before lunch and at the end of the shift each day, which is an increase of 20% over March. There were three cases of above tolerance hand contamination reports, but of these two were due to the failure of each employee concerned to record his final below tolerance count, and in the other case the employee did not indicate whether or not he rewashed his hands, so presumably left the plant with contaminated hands. Forty per cent of those spot checked in the plant were found to have above tolerance hand counts, and about the same figure is true for shoe contamination, protective clothing contamination, and glove contamination.

Approximately 300 film badges were used each week and no exposures above the tolerance of 500 mrep per week were recorded. However 8% of the total were between 30 and 500 mrep. An average of 66 film rings were used each week. Twenty six of those were found to have exposures between 30 and 500 mrep per week, but the only one above 500 mrep per week was caused by exposure to light. A little over 100 pocket chamber pairs were used each week, and no readings above 100 mr/day were found, but 31% of the total were in the 5 to 100 mr/day range.

Mr. A. F. Becher
May 12, 1949

- 2 -

The number of radiation survey instruments available in the plant has not changed appreciably. At present there are 179 alpha meters, 99 beta gamma meters, 17 hand counters, and 36 air samplers. A stack monitor for Laboratory J has been installed to monitor the activity of the exhaust air from the stack. The construction of 17 argon gammagraphs has been started.

None of the radium sources were found to leak during the month. Only two material releases were reported and two men were sent to the dispensary in each case for supervisory checks. Procedures for handling spills and accidents occurring during the shipment of radioactive material from K-25 to X-10 were drawn up and put into effect. Penetrating radiation as high as twice tolerance was detected outside the fenced area surrounding the two large radium sources in Laboratory B. Fences will be extended to include all of this over tolerance area.

Recently the Medical Department ^{has arranged to forward results of} ~~has begun sending us urinary reports.~~ ^{urinalysis}
As a result of one industrial recheck an area was found which was a highly contaminated area. Through accident, the surveyor was able to talk with the individual whose urine first aroused suspicion of the location which was being investigated. His hands were contaminated as shown by a spot check. The gloves were contaminated above 5000 c/m. The worker himself does not think it is necessary to keep the place cleaned up, or that it is necessary to check his hands except at the end of the shift. It has been recommended to the supervisor that this area be cleaned up.

(out) Section II

A mixture of SBS-11 and soda was found to be best for hand decontamination and has been placed in stores, along with dispensers for the material. The cost of the dispenser is \$5.00 and the mixture 70¢ per bag which will fill the dispenser about $1\frac{1}{2}$ times. The mixture is 80% SBS-11, 20% soda by weight.

Experiments have shown that hands may be as well decontaminated by a 10% soda solution as by a higher percentage, so there should be sufficient soda in the mixture to do the necessary decontamination. Since the mixture is principally soap, it could be used for routine hand cleaning except for unknown health affects of the soda-soap mixture. It should be pointed out that there is evidence that washing the hands with soap tends to fix the uranium rather than remove it in some cases. (A diagram of the experimental results was shown and the decontamination rates of SBS-11, soda, and the mixture were indicated).

Mr. A. F. Becher
May 12, 1949

Section III

The tool crib in K-303-4 and the main crib in K-1401 regularly receive contaminated tools and materials. The procedures in the two are exactly opposite. In one, tools which are stated to be contaminated are tossed into a contaminated bin and the others monitored, while in the other tools which are stated to be contaminated are monitored while the others are returned to stores for re-issue. The other tool cribs are not considered to present much of a hazard but they will be checked in the near future for the possibility of contaminated tools being placed in them.

HFH:lja

Hugh F. Henry
H. F. Henry

Radiation Hazards Department

Man-Hours for the Month of May
Days lost in May

714,281
18 Days

Plant Injuries

Minor 228
Sub-Major 1
Major 2

231 Total Plant Injuries for May.

<u>Major Injuries</u>	<u>Date Injured</u>	<u>Lost time began</u>	<u>Returned to Work</u>	<u>Days Lost</u>	
				<u>This Mo.</u>	<u>This Yr.</u>
	5-17-49	5-18-49	Still off	14	14
	5-27-49	5-28-49	Still off	4	4

Sub-Major Injury

Injured 5-28-49

	<u>May, 1949</u>	<u>Cumulative</u>	<u>April, 1949</u>
Frequency	2.80	1.62	0.00
Potential Frequency	4.20	2.70	4.19
Severity	.03	.01	.00

Motor Vehicle Accidents

	<u>No. of Vehicles</u>	<u>No. of Accidents</u>	<u>Mileage</u>	<u>Frequency Rate</u>	<u>Government</u>	<u>Other</u>	<u>Total</u>
Cars	194	6	157,606	3.81	\$105.00	\$10.00	\$115.00
Trucks	<u>140</u>	<u>2</u>	<u>94,013</u>	<u>2.13</u>	<u>12.00</u>	<u>0.00</u>	<u>\$12.00</u>
Total	334	8	251,619	3.18	\$117.00	\$10.00	\$127.00

No. of fires - 4 Est. Damage - \$16.00 Fire Loss Ratio - .00

Property Damages - 2 Est. Damage (1) \$10.00
(2) \$15.33
\$25.33

Material Release Reports for May - 5

Days operated since last Major Injury - 4
Hours operated since last Major Injury - 53,038

Actual Man Hours as of midnight, 5-22-49
 Estimated man hours 5-23 thru 5-31-49

511,856 hours
 209,394 hours
 721,250 hours

Plant Minor Injuries

Minor	176	thru Midnight, 5-19-49
Sub-Major	0	
Major	1	
Total Injuries	177	

Trigger - in machine shop - strained back

	<u>May, 1949</u>	<u>Cumulative</u>	<u>April, 1949</u>
Frequency (Est.)	1.39*	1.35*	0.00
Potential Frequency (Est.)	1.39*	3.78*	4.19
Severity (Est.)	.01**	.01	.00

*One case pending decision,

**Lost time for this employee was estimated as being 7 days. As of 5-23-49 employee was still off work

injured 5-20-49. in hosp. Tall (or) cannot determine cause of condition. Our Medical does not feel anything wrong with him.

<u>Injured</u>	<u>Lost Time Began</u>	<u>Est. Date of Return to Work</u>	<u>Days Lost</u>
----------------	------------------------	------------------------------------	------------------

5-17-49	5-18-49	5-25-49	7
<i>6/2/49 -</i>	<i>Turning over scaffold plank got caught in back</i>		
<i>5/21/49 -</i>	<i>5/24 reported continuous pain may be put off work has past history of back pain</i>		
<i>Material Release reports received - 2</i>	<i>Alleged pain in rt side while attempting to catch vehicle 5/24 post 24 (rest) pain no further attention to it until next evening while at home showering</i>		
	<i>Damage \$42.00 noted bulge in side no immediately severe pain or symptoms - Doubtful</i>		

Number of Motor Vehicle Accidents - 4
 Estimated Mileage - 210,451
 Estimated Frequency Rate - 1.90

Number of fires - 4 Est. Damage - \$15.00 Fire Loss Ratio - .00

Number of Property Damages - 2 Government Loss - \$100.00 Other Loss - \$10.00

Total Loss - \$110.00

Safety Department
 May 24, 1949

MOTOR VEHICLE ACCIDENTS

May, 1949

<u>Date</u>	<u>Report No.</u>	<u>Name</u>	<u>Vehicle No.</u>	<u>Est. Damage</u>	<u>Actual Damage</u>	<u>Description</u>
5-6-49	32		AE-671	\$ 5.00		'47 Ford Sedan, 3rd St., Right rear fender bent.
5-10-49	33	#1	AE-2522	No Damage		#1 - '42 Dumpster Truck
		#2	AE-722	\$ 10.00		#2 - '48 Ford Sedan, Drive- way at K-25 Service Station #2 vehicle right front fender bent.
5-17-49			AE-3918	No Damage		#1 - Duplex dump truck
			AE-2109	\$25.00		#2 - Ford pickup, right front door damaged.
5-18-49			AE-2326	No Damage		#1 - International Bus
			AE-2277	\$ 2.00		#2 - International Bus Parked unattended, left front fender scraped and right rear of body scraped.

Safety Department
May 24, 1949

FIRES - MAY, 1949

<u>Report No.</u>	<u>Date</u>	<u>Description</u>	<u>Est. Damage</u>
FR-49-15	5-4-49	Smouldering fire in pan of sawdust	No damage
FR-49-16	5-9-49	Fire involving corded tape heater - Room 213, K-1401.	\$ 5.00
FR-49-17	5-16-49	Electric fire in fluorescent lighting fixture, Treatment Room of Plant Dispensary, K-1003. Extent of Damage - Ballast transformer and insulation from wiring burned.	\$10.00
	5-16-49	K-1030 Bldg., overheated electric bake oven.	Unknown

Safety Department
May 24, 1949

PROPERTY DAMAGE

<u>Date</u>	<u>Description</u>	<u>Est. Damage</u>
5-10-49	Damage to #C-7 Fire Hydrant Lorain shovel #17-3509, Patrol Road, 7 feet east of Gate #45.	\$100.00 involving labor and material.
5-17-49	Windshield of private owned car. Tennessee '47 Chrysler Sedan, right section of windshield broken.	\$10.00
	'48 Ford Sedan	No damage

Safety Department
May 24, 1949

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 Plant
Oak Ridge, Tennessee

CENTRAL SAFETY AND HEALTH COMMITTEE MEETING MINUTES
April 12, 1949

Attendance: R. M. Batch J. J. McCarthy
C. K. Beck J. P. Murray
E. C. Bollinger D. H. Riley
S. Cramer B. Speyers
A. P. Dunlap R. R. Wolf
H. R. House J. S. Lyon
W. B. Humes Plant General Foreman (Represented by
A. P. Huber G. S. Hensley) (4)
F. W. Hurd

W. L. Richardson S. Visner
A. F. Secher H. F. Henry

Absent: J. A. Elkins J. J. Fritz

The meeting of the Central Safety and Health Committee was called to order by Mr. W. B. Humes, K-25 Plant Superintendent, at 9:55 A. M., April 12, 1949. The minutes for the March meeting were approved as written.

I. OLD BUSINESS

None.

II. NEW BUSINESS

A. Industrial Hygiene Activities - Discussed by Dr. J. S. Lyon

Urinalysis

One hundred sixty-one (161) analysis for uranium were made, the results of which were all below the level associated with damage. Twelve (12) analysis involving nine (9) employees revealed traces of "U". Three (3) were picked up during periodic health re-checks involving employees in Process, Maintenance, Engineering Development, and Laboratory Divisions. Seven (7) were attributed to persons being in the vicinity of a material release. These occurred in the Laboratory and Maintenance Divisions. All of the above results were negative on follow-up sampling results with the exception of two (2) in the Laboratory Division. Recall results on these are not available as of this date.

Alpha Count

A total of one hundred thirty-seven (137) analysis were made during the month of March, one hundred thirty-two (132) of which were below the tolerance value of 2 c/m/100 ml. The remaining five were over the tolerance level; however, on follow-up visits, two cases were below 2/c/m/100 ml. Recall results on the remainder not

Central Safety and Health Committee Meeting Minutes April 12, 1949

available at the present time. One case involving a Laboratory worker with high findings was the result of a material release; however, subsequent follow-up results were below the tolerance figure.

Two (2) air samples for "U" were taken in Room 09, K-1004-D, one of which was in excess of 0.15 mg/cu.m. for uranium based upon its chemical toxicity. Employees involved have been instructed to wear approved respirators while handling "U" on this operation.

Mercury

A total of twenty-five (25) analysis for mercury were made, twenty-two (22) of which were below 0.1 mg/ HG/liter; two (2) were in a range between 0.1 and 0.2 and one was in excess of 0.2 mg Hg/liter. The conditions previously reported on mercury exposure in the Vacuum Pump Shop have quieted down and it is expected that with the provision of gloves for this operation future exposures will be minimized. Continued evidence of mercury exposure on the case carried over from last month was attributed to a medicine being used by the employee rather than being the result of his work.

Fifty-four (54) air samples for mercury vapor were taken during this period, all of which were below the maximum allowable concentration of 0.1 mg/cu.m.

Fluoride

Ninety-four (94) analysis for fluoride were made during this period; eighty-nine (89) of which were below 1.0 mg F/liter. Four (4) were in the range between 1.0 and 1.5, and one in excess of 1.5 mg F/liter. The above involved employees in the Maintenance, Process, and Laboratory Divisions.

Fourteen (14) air samples were taken in the K-413 Building in the Polymerization Room for trifluorochloroethylene. Only two of the fourteen results were less than the maximum limit of 10 ppm.

Action Taken - Due to the frequency of samples in the K-413 Building above the maximum allowable concentration value of 10 ppm used by the K-25 Plant, Messrs. Murray and Lyon were requested to study the operations involved to determine whether additional ventilation should be supplied as well as to check into the maximum allowable concentration figure established by the plant and the analysis methods being used.

Zinc Oxide

Four (4) air samples for zinc oxide were taken in the Sheet Metal Shop, K-1401. A check of welding operations at a shop table was made due to complaint of employees who reported symptoms characteristic of exposure to zinc oxide. No auxilliary ventilation was provided at this location and air samples taken without ventilation were above the maximum allowable concentration. Subsequent provision of portable local exhaust ventilation has alleviated this problem.

Trichloroethylene

All samples taken at degreaser units or CNS cylinder cleaning operations were negative or below the threshold limit.

Miscellaneous Contaminants

Forty-Five (45) air samples were taken at the Acid Cleaning Operation, Building K-1024 Instrument Decontamination and Cleaning Unit. All findings were within the MAC set-up for the respective materials.

B. Health Physics Activities

Dr. H. F. Henry, who will be the representative of the Radiation Hazards Department for the Central Safety and Health Committee was introduced to the committee. He discussed the activities for the month of March as follows:

Personnel Monitoring Program

The program of area and personnel monitoring in the plant for contamination and penetrating radiation was continued during the month. A slight decrease in both factors was noted which is principally attributed to better job techniques and general improvement in areas where contamination and radiation hazards have been most prevalent.

1. Air Samples

Continuous air samples were taken at sixteen (16) locations within the plant. Of the eighty (80) reported, only four (4) were above tolerance and these occurred in areas where respiratory protective equipment is worn during operations. No indication of exposure to personnel due to air contamination was noted.

2. Hand Counting

During the month, three hundred eighty-three (383) employees were monitored for hand contamination. Of these, seven (7) cases of final above tolerance counts were recorded, two of which appeared to be the result of improper use of the instrument and the remainder were attributed to contamination. An employee involved in one of these cases was handled properly to assure he would not leave the plant until proper decontamination was affected. In the four (4) remaining cases employees went home without bringing contamination levels down to established limits. In one of these four (4) cases subsequent investigation revealed that the employee in attempting decontamination had scrubbed with soap to the point where his hands were chapped and bleeding, without successfully reducing the contamination level.

Action Taken - It was recommended that the use of a paste made up of SBS-11 and bicarbonate of soda be re-emphasized for the above purposes. Results from experiments to date indicate that the recommended paste is a satisfactory means for the removal of plant radioactive contaminants and does not appear to be damaging to the hands. Although other agents are better for use in connection with uranyl nitrate the above mixture is effective with repeated washing. Final report of experiments in this regard will be submitted next month.

Employee spot check by Health Physics Inspectors during the month revealed 30% of these checked had detectable hand contamination and 47% clothing contamination, further emphasizing the importance of the hand checking program now in effect.

3. Film Badge and Pocket Chambers

a. A total of one hundred sixty (160) film badge exposures between 30 and 500 mreps were recorded during this period. There were no films recorded above the 500 mreps per week tolerance.

b. Pocket chamber readings revealed one (1) reading between 50 and 100 mreps per day - a total of 200 between 5 mreps and 50 mreps per day. There were no readings recorded above the 100 mreps per day tolerance.

c. Monitoring data are being set up on IBM cards by the Statistical Laboratory. Data not previously available may now be found and film badge as well as pocket chamber records will be kept on employees involved even though the exposure is zero.

Instruments

The plant now has one hundred eighty-two (182) alpha survey meters, one hundred seven (107) beta gamma survey meters, thirteen (13) hand counters, and thirty-six (36) air samplers located throughout the Plant Area.

Water and Mud Sampling

1. During the month the program of water sampling revealed no abnormal uranium, fluoride, alpha or pH concentration. The beta activity in K-25 drinking water is well below present tolerance standards. Even the maximum peaks during this period were below that level. Peaks determined during the month were due to overflow conditions at White Oak Creek due to inability of the X-10 Plant to control the discharge of the creek to the river.
2. Tests were made to determine if the sewage from the K-25 Plant constituted a stream pollution hazard. Conclusions to date indicate that it does not constitute a hazard; however, there are indications that uranium recovery might be considered.

April 12, 1949

Action Taken - A sub-committee composed of Mr. A. P. Huber, Chairman, and Messrs. J. P. Murray and R. Korsmoyer was appointed to meet with representatives of the Safety and Inspection Division to review the requirements of the Tennessee Stream Pollution Laws as well as the AEC Regulations relative to the disposal of industrial wastes with the view of determining a definite plant policy in this regard.

Radium Sources

Radium sources in the K-25 Plant were checked and no indication of leakage was found. It was recommended, however, that users of such sources maintain a log book for the purpose of recording the names of those who take them out and their destination, and when returned, so that a proper check can be maintained on movements of the sources.

C. Report on Plant Usage of Work Gloves

Mr. W. L. Richardson reviewed the reports submitted by the Safety Department dated April 4, 1949 and recommended action be taken to minimize the waste presently being experienced due to misuse of this type equipment on the Plant. Following discussion it was the consensus of the group that:

1. The plant would still furnish gloves in accordance with the policy established in the past for jobs wherein hand protection is deemed necessary by the responsible supervisor and in addition on all jobs involving exposure to contaminants.
2. All plant supervisors will immediately be instructed that the use of their signature by others than themselves must be discontinued on issue slips for tool crib items.
3. Responsible supervisors shall determine that gloves are either worn out or contaminated above tolerance limits prior to authorizing replacement.
4. "Poppies" are to be installed at all issuing cribs handling contaminated items. This will also assist in surveying work gloves being returned by employees so that segregation of contaminated from non-contaminated types can be made as well as to check on contamination levels.
5. The cost of gloves should be charged against the using department so that supervisors will be cognizant of the cost associated with the misuse of such equipment; however, it was decided to hold further discussion on this possibility over to the next meeting, and the Safety and Inspection Division will discuss the establishment of such controls by the tool cribs with the Manufacturing Offices.
6. Typical examples of the misuse of work gloves should be made available to each division and the division superintendent will bring them to the attention of all levels of supervision through discussion at safety meetings.

D. Review of Safety Activities - W. L. Richardson

1. Promotion and Education

a. Billboards, posters, etc.

A schedule for the use of promotion and education material such as posters, billboards, calendar inserts, etc. has been prepared to tie in with monthly safety themes. During the coming year this will include coverage at quarterly intervals of material related to Health Physics activities on the Plant. In addition, a spring clean-up campaign will be promoted by the Fire Prevention Section, and a period will be set aside for observance of National Fire Prevention Week during the month of October. Other pertinent safety subjects developed in line with the trend of plant injuries will be used in between the regularly established periods for Health Physics and Fire Prevention.

b. Safety Films

(1) During the past month the film entitled "Miracle in Paradise Valley" was shown to 2113 employees of the various plant divisions. The film received universal approval by all employees to whom it was shown in spite of the fact that it was directed toward a farm safety theme. The emotional appeal to all was exceptional and the effectiveness of such a film cannot be over emphasized.

(2) A series of films dealing with fundamentals in Safety and Foremanship has been received from the UCC Safety Division. These films entitled "Human Factors in Safety" are designed to aid the supervisor in seeking out the personal and psychological reasons for employee failure in safe work performance. The series of films also provide fundamental training in the handling of safety committee meetings and accident investigation. During the past month the first series dealing with "people are alike", and "people are different", was shown to Laboratory personnel. Dr. Hurd reported that the reaction of all concerned was favorable.

Action Taken - It was planned to extend the use of this series to other divisions within the plant as soon as the film is available from Carbide and Carbon Chemicals Corporation on a longer term loan basis.

✓ c. Safety Incentives and Award Plan

(1) For the third consecutive time in the past six months the plant is approaching a one and one-half million man hour period worked without a disabling injury. Acceptance of a sub-major injury as a disabling injury on March 14th broke a string of accumulated man hours in the amount of 1,166,845*. Since this time the plant has worked 735,846* man hours without a disabling injury and will have reached one and one-half million man hours by approximately May 12, 1949.

* Estimated

(2) Acceptance of the above mentioned injury as a disabling injury occurred partly through failure of supervision to provide the employee with another regularly established job which he could perform. In this instance the Medical Department had released the employee for work, providing he not be required to do extensive walking, climbing, etc., re-emphasizing the fact that a proper job placement program for injured employees should be established.

(3) To avoid unnecessary penalty upon certain departments, divisions, or the Plant, it was therefore recommended that a uniform policy be established for the return to work of those employees who of necessity must be re-assigned to other duties due to the severity of their injury.

Action Taken -

- (1) The Medical Department is responsible for ascertaining the degree of disability of the injured employee and to determine what the employee cannot do due to physical limitations necessarily imposed because of the severity of an injury.
- (2) The Medical Department will advise the responsible supervisor and the Safety Department immediately by phone when in their opinion an employee, due to the severity of an injury cannot perform his normal job duties.
- (3) The responsible supervisor and the Safety Department shall determine what regularly established plant jobs injured employees can perform within the limitations of the medical restrictions.
- (4) The responsible supervisor shall be responsible for the placement of such employees on other jobs by checking with other supervisors to determine availability of such jobs.

2. Inspection and Field Work

a. In general, plant housekeeping is good with the exception of large construction jobs where scrap material is allowed to accumulate on the job and layout of work equipment or materials is not safely planned. Employees should be instructed to continually follow-up such conditions during the course of the installation rather than to have sporadic attempts made by supervision to clean-up when conditions become extremely poor. Housekeeping on trucks used by Maintenance and Service Groups for transportation of equipment and materials needs re-emphasizing as evidenced by the accumulation of "junk", transportation of unchoked cylinders, electrical lamps allowed to lie on the floor of such vehicles, etc.

April 12, 1949

b. Increased emphasis on the wearing of eye protective equipment, (safety spectacles or goggles) is going forward. A recent decision to require employees in the Machine Shop to wear safety spectacles during the course of their employment resulted in complaint by employees and union representatives. It is felt that definite rules requiring or not requiring the use of spectacles is the only solution to the problem. In our experience this is the only satisfactory means of securing cooperation which is further emphasized by national experience of large industries which indicates that educational methods alone have not been successful. However, it should be borne in mind that employees must be made acquainted with the reasons for their use, limitation of the equipment and should be encouraged if necessary to wear them part time until they become accustomed to working with glasses. Messrs. Speyers and Riley agreed that the above method was proving highly satisfactory in their respective divisions.

c. Job Safety Rules - This requires further emphasis by supervision as indicated by employees using other than standard equipment such as chairs for ladders, make shift scaffolding, lack of protective equipment, use of defective equipment and tools, all of which are major factors contributing to plant accidents.

d. It is interesting to note that the reduction of minor injuries in the General Maintenance Division is in keeping with the record established recently by them in operating ninety-two (92) days without a disabling injury. During the month of January, 1949, they had experienced 53.37% of plant minor injuries. This was reduced in February to 40.06% - an excellent record. It would do well for all divisions to review the causative factors of minor injuries being experienced by their employees and to concentrate on eliminating the major accident factors pointed up in the Monthly Accident Experience Report.

e. Belt and Pulley Guards - Approved types of guards for six (6) types of small vacuum pumps are being fabricated as recommended by the Central Safety Committee on November 23, 1948. A recent memorandum from the Assistant Plant Superintendent requested that all small vacuum pumps being repaired in the shop are to be equipped with these guards. Following the establishment of an adequate stores supply of such guards, the Safety and Inspection Division will follow-up in the field to assure that guards are installed.

Action Taken - Mr. R. M. Batch advised that work orders were in the field for the fabrication of a stores supply of the above type guards and they should be available in stores shortly.

3. Protective Equipment

a. The plant supply of impermeable suits remains critical due to failure of this equipment through wear and age. To alleviate the above we have secured from the Y-12 Plant a loan of five (5) new type suits, pending receipt of our shipment from the Chemical Warfare Corps, now promised for delivery during May, 1949. In addition, contact has been made with the Standard Safety Equipment Company, Cleveland, Ohio, in an attempt to develop such equipment through commercial sources.

Central Safety and Health Committee Meeting Minutes

April 12, 1949

b. A special welders mask has been developed in cooperation with the Safety Equipment Distributing Company of Knoxville, Tennessee. Delivery is expected within the next six (6) weeks.

4. Rescue Squads

a. Local emergency plans are being brought up to date to take care of operational and organizational changes. Local emergency groups are being familiarized with the plans for their areas and are being trained in the use of various types of protective equipment.

b. Mr. Hensley reported that plant rescue squads are being certified as having completed the fundamental training in handling plant emergencies as of April 4, 1949. Problem drills are being scheduled to maintain proficiency and to allow the squad members to become familiar with the types of equipment used under simulated conditions of emergency on the plant. The first series of problem drills were of necessity fairly simple.. It is expected, however, that these can be made more complex to incorporate coordination with other groups such as Fire Department, Guard Department, Medical Department, and Utilities Department in the future.

5. Traffic Safety

With the installation of new perimeter fences and guard portals for the new controlled areas, responsibility for the control of traffic within this restricted area has been assigned to the AEC Security Division. At a meeting held with Chief J. S. Davis, and Messrs. R. W. Menke and J. A. White of the AEC Security Division, plans were formulated for the handling of traffic violations and motor vehicle accidents involving Government motor vehicle operators within the new restricted area. Chief Davis advised that the following policy will be observed by AEC Patrolman:

- a. All traffic violations will be handled in accordance with Tennessee State Laws, and in serious cases, violators will be turned over to the proper County authorities for prosecution.
- b. Misdemeanors which were formerly referred to the Oak Ridge Review Board will in the future be handled by the officer on the spot in the case of private vehicles. Incidents of violations by operators of Government vehicles assigned to the K-25 Plant will be called in to the Safety Department or the Plant General Foreman's Office for referral and action by the responsible supervisor.
- c. Accidents involving Government vehicles within the restricted area will be brought to the attention of the Safety Department or the Plant General Foreman's Office so that proper investigation can be made for the preparation of reports required by AEC.

Chief Davis is to be complimented on the highly cooperative attitude shown by he and his force as has been evidenced in the handling of the traffic bottleneck which grew out of the opening of the new checking stations as well as traffic congestion formerly experienced at plant shift change time.

April 12, 1949

6. Plant Safety Lane


Mr. Richardson reported that plans were being made for the discontinuance of the Safety Lane formerly operated by the plant. Inasmuch as plant motor vehicles are now in excellent condition and replacement of old stock practically complete, it is expected that the schedule can be extended to six month intervals. Plans for handling these semi-annual tests will be worked out shortly. Routine check of safety items in vehicles will be handled by the Garage.

All vehicle operators are responsible for seeing that unsafe equipment is not operated and for having unsafe items corrected at vehicular shops.

7. Insurance and Medical Costs

Mr. R. R. Wolf reported that the statistics recently compiled by the Insurance Department indicates that the insurance and medical costs of non-occupational disabilities now exceeds the cost of occupational disabilities by a ratio of approximately 25 - 1. Committee members were urged to emphasize the importance of off-the-job safety as well as on-the-job safety to their employees.

The meeting adjourned at 11:35 A. m.


A. P. Dunlap, Superintendent
Safety and Inspection Division

APD:AFB:mrh

cc: Mr. C. L. Center
Mr. T. E. Lane
Mr. O. Rinehart
Mr. C. E. Larson
Mr. C. N. Rucker

AGENDA

11

CENTRAL SAFETY AND HEALTH COMMITTEE

Meeting -- April 12, 1949

For the month of March

Review of Minutes of Last Meeting

W. B. Humes

Report of health and Safety Activities
Industrial Hygiene and Medicine
Health Physics
Safety and Fire Prevention

J. S. Lyon
S. Visner
A. L. Richardson

Review of Accident Experience:

<u>Major Injuries</u> <u>Name</u>	<u>Injury Date</u>	<u>Began Losing Time</u>	<u>Days Lost</u>
	3-14-49	3-15-49	2
	11-10-48	3-24-49*(still off)	

B. Speyers

J. P. Murray

*No disability was anticipated, however, lost time started when this case was hospitalized on 3-24-49 for surgery to repair ruptured ligament of right knee.

Non-Tab Major Injuries

3-13-49

D. H. Riley

	<u>This Month</u>	<u>Last Month</u>	<u>This Year</u>	<u>1948 Cumulative</u>
Frequency	1.27	2.83	1.76	3.35
Severity	.003	.007	.01	.03

254 industrial injuries, one disabling and one requiring work assignment in accordance with medical restriction.

9 motor vehicle accidents -- estimated damage, \$320.00--frequency rate, 3.90.

5 fires - estimated damage \$112.00.

6 material releases, five of which involved radioactive material, one of which involved ammonia.

No reportable property damage accidents recorded.

Review of report on work glove usage -

W. L. Richardson

INTER-COMPANY CORRESPONDENCE

INSERT
NAME

COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION _____

Post Office Box P
OAK RIDGE, TENN.

TO Mr. A. F. Eeher
LOCATION

DATE March 22, 1949

ANSWERING LETTER DATE

ATTENTION
COPY TO

SUBJECT

In accordance with Mr. Humes request and as instructed by Mr. Dunlap, please revise the mailing list for the Central Safety and Health Committee Meeting Minutes as follows:

Delete copies to Mr. S. R. Sapirie or AEC; this also means that requests for copies from Marsden or Hostetter are to be denied. If such occurs, advise them that Mr. Humes decided that it was not necessary for AEC to receive either Superintendents Meeting Minutes or Central Safety Meeting Minutes.

WLR

W. L. Richardson
Safety and Inspection Division

WLR:mrh

WLR:mrh
Noted
ATB
per Lander

five

REVIEW OF SAFETY ACTIVITIES - W. L. Richardson

I. PROMOTION AND EDUCATION

A. Billboards, posters, etc.

A schedule of promotion and education material such as posters, billboards, calendar inserts, etc. has been prepared to tie in with monthly safety themes. During the coming year this will include ^{coverage} at quarterly intervals of material related to Health Physics activities on the Plant. In addition, a spring clean-up campaign will be promoted by the Fire Prevention Section, and a period will be set aside for a National Fire Prevention Week during the month of October. Other pertinent safety subjects developed in line with the trend of plant injuries will be used in between the regular established periods for Health Physics and Fire Prevention.

B. Safety Films

1. During the past month the film entitled "Miracle in Paradise Valley" was shown to 2113 employees of the various plant divisions. The film received universal approval by all employees to whom it was shown in spite of the fact that it was directed toward a farm safety theme. The emotional appeal to all was exceptional and the effectiveness of such a film cannot be over emphasized.

2. A series of films dealing with fundamentals in Safety and Foremanship has been received from the UCC Safety Division. These films entitled "Human Factors in Safety" are designed to aid the supervisor in seeking out the personal and psychological reasons for employee failure in safe work performance. The series of films also provide fundamental training in the handling of safety committee meetings and accident investigation. During the past month the first series dealing with "People are Alike", and "People Are Different" was shown to Laboratory personnel. Reaction of all concerned was favorable. It is planned to extend the use of this series to other divisions within the plant as soon as the film is available from Carbide and Carbon Chemicals Corporation on a longer term loan basis.

C. Safety Incentives and Award Plan

1. For the third consecutive time in the past six (6) months the plant is approaching a one and one-half million man hour period worked without a disabling injury. Acceptance of a sub-major injury as a disabling injury on March 14th broke a string of accumulated man hours in the amount of 1,166,845.* Since this time the plant has worked 735,846* man hours without a disabling injury and will have reached one and one-half million man hours by approximately May 12, 1949.

2. Acceptance of the above mentioned injury as a disabling injury occurred through failure of supervision to provide the employee with another regularly established job which he could perform. In this instance the Medical Department had released the employee for work, providing he not be required to do extensive walking, climbing, etc. Re-emphasizing the fact that a proper job placement program for injured employees should be established.

* Estimated

3. During June of 1947 UCC Industrial Relations Division, Cleveland Office, issued a memorandum establishing an Industrial Injury Code for use by all Units of UCC, and subsidiary Companies. With minor exception this plan is identical with the K-25 Plant method which utilizes the American Standards Association "Method for Compiling Industrial Injury Rates" for reporting purposes to the Atomic Energy Commission.

4. The above mentioned codes were established as a basis for reporting the accident experience of the Corporation. It is important to remember that the methods established for the reporting of occupational injuries and disabling injuries under these codes is independent of all State and Federal Workmen's Compensation Laws for reporting injuries and/or rulings as to the extent of disability by such agencies. Inasmuch as economic factors as well as the rulings of the courts hearing such cases influence their acceptability for settlement by compensation agencies. It will be seen that in many cases a casual connection with employment is all that is necessary to determine acceptability. On the other hand, accident rates used by safety organizations are based on injuries arising out of and in the course of employment, and while in the case of compensation settlement the burden of proof is generally upon the employer, in the case of injury reporting, an accident generally must be established.

In connection with the above mentioned code, the Corporation has provided recognition for those plants who have established outstanding safety records in accordance with the prescribed rules, (See UCC Safety Award Plan, dated December 26, 1945). The Oak Ridge Plants have during the past year all received recognition for outstanding accident prevention records and individual awards have been given to plant employees,

To avoid unnecessary penalty upon certain departments, divisions, or the Plant, it is, therefore, recommended that a uniform policy be adopted to determine which injuries are to be classified as disabling and to afford an opportunity for each unit, department, or division to take advantage of specific plant jobs which could be made available to employees who of necessity must be re-assigned to other duties due to the severity of their injury.

The above plan has additional merits wherein employees who may incur an occupational injury are sent off the job: (1) In many cases adequate medical facilities are not immediately available to them; in such cases this requires follow-up by the Insurance Department to offer assistance to take care of the needs of the employee and his family. (2) Employees who can be returned to the plant can be treated by the attending physician or referred to outside medical for re-treatment, or dressing of the injury and complications due to the injury can be nipped in their incipency. (3) Worry over loss of pay by the employee is thus eliminated and the Company will gain some productive output by the employee as well as promote employee relations. (4) Assigning injured employees to supervised job assignments at the plant will assure that the employee will not unnecessarily expose himself to further injury as might be the case if he were at home and would attempt to perform work about the house indiscriminately. In the event of the latter, the Company is liable to the extent of the ultimate disability of the employee where the original injury may be aggravated while at home.

II. INSPECTION AND FIELD WORK

A. Plant housekeeping generally may be classified as good with the exception of certain facilities such as service vehicles used by maintenance and operation groups, and on large construction jobs. This has been brought to the attention of responsible supervision, but requires continuous follow-up by all levels of supervision rather than sporadic attempts to clean-up when conditions become poor.

B. Increased emphasis on the wearing of eye protective equipment, (safety spectacles or goggles) is going forward. A recent decision to require employees in the Machine Shop to wear safety spectacles during the course of their employment resulted in complaint by employees and union representatives. It is felt that definite rules requiring or not requiring the use of spectacles is the only solution to the problem. In our experience this is the only satisfactory means of securing cooperation which is further emphasized by national experience of large industries which indicates that educational methods alone have not been successful. However, it should be borne in mind that employees must be ^{made} acquainted with the reasons for their use, limitation of the equipment and should be encouraged if necessary to wear them part time until they become accustomed to working with glasses.

C. An analysis is being prepared in an attempt to determine the effectiveness of an overall eye protection program including the orthorotation and refraction of employees to determine the possible relationship of defective vision to accident proneness. A further ~~xxxx~~ report will be made on this later.

D. Further study of employee qualification and physical limitations in determining proper work assignment should be continued. This should be done on a routine basis to guard against mal-assignment of employees to work which they are not able to perform safely.

E. Failure to use, use of improper or improper use of protective equipment continues as a major factor contributing to plant accidents. Misuse of such equipment is of serious concern as illustrated in the report issued recently on usage of work gloves. A similar condition exists in the usage of respiratory protective devices. We have discovered during the past few months that mask equipment has been allowed out in the field for as much as six (6) months to one year without return for a check on canister efficiency, mask deterioration, etc. Four (4) or five (5) cases have recently been brought to the attention of the Safety Department revealing canisters that have failed completely due to moisture accumulation.

With the installation of the emergency equipment boxes throughout the plant area it was requested that supervision arrange for the return of all outstanding equipment to the Tool Cribs. Where necessary due to operating needs, re-issue would be made on a temporary loan basis to assure return of such equipment for inspection and service at three (3) month intervals. An all-out drive is being planned by the Safety Department to have this equipment returned to Tool Cribs in the immediate future. In the meantime supervisors should take necessary steps to return such equipment immediately.

F. Job Safety Rules - This requires further emphasis by supervision as indicated by employees using other than standard equipment such as chairs for ladders, make shift scaffolding, lack of protective equipment, use of defective equipment and tools, all of which are major factors contributing to plant accidents.

G. It is interesting to note that the reduction of minor injuries in the General Maintenance Division is in keeping with the record established recently by the General Maintenance Division in operating ninety-two (92) days without a disabling injury. During the month of January, 1949, they had experienced 53.37% of plant minor injuries. This was reduced in February to 40.06% - an excellent record. It would do well for all divisions to review the causative factors of minor injuries being experienced by their employees and to concentrate on eliminating the major accident factors pointed up in the Monthly Accident Experience Report.

H. Belt and Pulley Guards - Approved types of guards for six (6) types of small vacuum pumps are being fabricated as recommended by the Central Safety Committee on November 23, 1948. A recent memorandum from the Assistant Plant Superintendent requested that all small vacuum pumps being repaired in the shop are to be equipped with these guards. Following the establishment of an adequate stores supply of such guards, the Safety and Inspection Division will follow-up in the field to assure that guards are installed.

I. Safety Committees - As previously reported plant safety committees have been re-organized at all levels within the plant. It has been noted in meeting minutes submitted by various employee level committees an attempt is being made by the employees to use such discussonal meetings as gripe sessions. Recurring recommendations made relative to quality and quantity of food in cafeteria facilities, type of containers, heating facilities, and other items with no relation to job safety are indications of the above. It will require a continued effort on the part of supervision to hold such meetings to a discussion of job safety and safe working conditions on the plant. This will mean that plant supervisors must prepare for these meetings in advance and must hold to a pre-determined agenda to avoid their turning into bull sessions for the purpose of criticizing the Company. While it is desirable to allow hourly employees lead discusson on specific items, no committee should be allowed to function without the active direction of the responsible supervisor.

J. Test, Inspection and/or Minor Field Repair of Corded Electrical Equipment - The program for accomplishing the above on such items as office machines, portable tools, and all types of electrical appliances is proceeding satisfactorily, and upon completion of the first six (6) months schedule for the year 1949 it is expected that recommendations relative to further scheduling can be made. Recently we have added such items as instruments and line recorder equipment to the present schedule. It was found that considerable improvement could be made in the installation and maintenance of all electrical control equipment on the tube racks as well as bringing the mechanical aspects of instrument installation up to a par with other types of electrical equipment on the plant. It is expected that an approved design will be forthcoming from the Instrument Groups shortly and that a complete check of the instrument facilities throughout the plant will be accomplished within the next three (3) months. The above will not only provide a factor of safety on such jobs which has been generally neglected, but it will also improve the maintenance of the equipment and should, therefore, ultimately reduce the cost of maintaining such equipment.

A new instrument developed as a simple means of checking insulation resistance as well as continuity of grounding on portable electrical tools is being investigated. Should this prove satisfactory it will be possible to install these in the various issuing tool cribs and they could be checked by tool crib attendants.

III. PROTECTIVE EQUIPMENT

A. Standard Practice Procedure covering the issuance and maintenance of safety equipment is in the process of being issued by the Central Methods Group and should be available for distribution on the plant shortly.

B. The plant supply of impermeable suits remains critical due to failure of this equipment through wear and age. To alleviate the above we have secured the loan of five (5) new type suits from Y-12 Plant pending receipt of our shipment from Chemical Warfare Corps. In addition contact has been made with the Standard Safety Equipment Company in Cleveland, Ohio in an attempt to develop such equipment through commercial sources.

C. A special welders mask has been developed in cooperation with the Safety Equipment Distributing Company of Knoxville, Tennessee. Delivery is expected within the next six weeks.

D. A new type of coverall which will offer greater protection against dust infiltration is being developed in cooperation with American Optical Company and receipt of a sample garment is ~~xxxx~~ expected this week.

IV. RESCUE SQUADS AND EMERGENCY STATIONS

A. Plant rescue squads are being certified as having completed the fundamental training in handling plant emergencies as of April 4, 1949. Problem drills are being scheduled to maintain proficiency and to allow the squad members to become familiar with the types of equipment used under simulated conditions of emergency on the plant. The first series of problem drills were of necessity fairly simple. It is expected ~~that~~ however, that these can be made more complex to incorporate coordination with other groups such as Fire Department, Guard Department, Medical Department, and Utilities Department in the future.

B. Local emergency plans are being brought up to date to take care of operational and organizational changes. Local emergency groups are being familiarized with the plans for their areas and are being trained in the use of various types of protective equipment. Such local plans are being reviewed by the Safety ~~at~~ and Inspection Division with the view of preparing an overall plant emergency plan for the approval of the Central Safety Committee.

V. Standard REFERENCE INFORMATION

Preparation of material relative to safe practices, plant safety rules, recommended use of protective equipment and safety standards continue as previously reported.

VI. TRAFFIC SAFETY

With the advent of the opening of Oak Ridge as a normal community and the installation of the new perimeter fences the responsibility for traffic control within the restricted area has been assigned to the AEC Security Division. At a meeting held with Chief J. S. Davis, and Messrs. B. W. Menke and J. A. White of the AEC Security Division, plans were formulated for the handling of traffic violations and vehicular accidents within the new restricted area. Chief Davis advises that

his patrolmen are being instructed to enforce th Tennessee Law within this Area. Misdemeanors which were previously referred to the Oak Ridge Review Board for reprimand of the individual are bieng discontinued. Violators will be disciplined on the spot and where the violations are of a serious nature they will be turned over to the County authorities for prosecution under due processes of law. Operators of Government vehicles within this area will be dealt with in the same manner as above, and Chief Davis will bring to our attention cases of vilation for action by the Plant. Such notices will be made immediately by telephone from the Chief's Office and will be followed up by memorandum from his office outlining the violation, date, place, name of operators, etc. Inasmuch as K-25 is responsible for reporting to the AEC Safety Branch all cases of accidents involving Government vehicles, Chief Davis has agreed to advise us of these incidents so proper investigation and reports can be prepared. Chief Davis is to be complimented on the highly cooperative attitude as has been evidenced in his handling of the traffic bottleneck growing out of the new checking stations, and the traffic congestion at plant shift change time.

Prepared by A. F. Becher for
Central Safety and Health Committee Meeting
April 12, 1949

R U G H D R A F T

April 14, 1949

The program of area and personnel monitoring in the plant for contamination and penetrating radiation was continued during the month and I am glad to say that a slight decrease in both factors has shown up. These decreases are principally attributed to better job techniques, and the provision of additional facilities in the areas where contamination and radiation dangers have been most prevalent. The plant now has in use 182 alpha survey meters, 107 beta gamma survey meters, 13 hand counters and 36 air samplers. The program of water sampling revealed no abnormal uranium, fluoride, alpha or pH concentration. The beta activity in K-25 drinking water is well below present tolerance standards. Even the maximum peak is below that tolerance level. The only peaks were due to overflow conditions at White Oak Creek where our friends above us on the river couldn't control the discharge of White Oak Creek to the River. Continuous air samples were taken in 16 locations. Of the 80 reported, only 4 were above tolerance and these occurred where protective equipment is worn. There is no evidence of exposure of personnel due to air contamination. Tests were made to determine if the sewage from the K-25 Plant constituted a stream pollution hazard. The conclusion is that it does not constitute a hazard. ~~However, there is a question as to whether it might not produce a condition calling for the recovery of uranium.~~ However, there are indications that uranium recovery might be considered. ~~At this time I should~~ It has been suggested that a stream pollution board be set up, of which one member would come from the Medical Department, another from the Health Physics group and the others from Process, Maintenance, or Engineering. In the personnel monitoring program of the plant 333 employees received hand checks, of these there were 7 cases of final above tolerance counts. Two appeared to be due to improper use of the instrument and one was handled properly. The other four went home. One of these is particularly of interest in that the statement of

the Health Physics surveyor states that his hands were chapped and bleeding from too much washing. There is no indication that anything but soap was used during the washing program. Of employees spot checked by the Health Physics inspectors, 30% showed hand contamination, and 47% clothing contamination. These figures indicate the importance of the hand checking program now in effect. For ~~film badges~~ ^{dosimeters} there were no readings above 100 mreps per week and only one reading between 50 and 100 mreps per week. A total of 200 were between 5 mreps and 50 mreps. In film badges there were no above tolerance reports of 500 mreps per week, with a total of 160 exposures between 30 and 500 mreps. The radium sources in the K-25 plant were checked and no indications of leakage was found. The Radiation Hazards Department recommends that each of the radium sources should keep a log book in which the sources are checked in and out, names of those who take them are listed and their destinations. The safety meetings during February and March were devoted to the Health Physics personnel monitoring programs. A total of 48 meetings were attended at which 300 persons were contacted. Also, two display boards concerning hand counting are now being erected. Monitoring data are now being kept on IBM cards by the Central Statistical Laboratory. The importance of this step is that data which were not previously available may now be found. Definite film badge records for everyone are kept even though the exposure is zero. Also, the pocket chamber readings are added for each week and kept for each individual. The experimental program of hand decontamination agencies continued. At present it seems that a mixture of SBS-11 and soda will do a good job of decontamination for substances found in the plant. Although other agents are better for uranyl nitrate the mixture will take it off after repeated washings. A final report on that program should be available next month. The materials do not seem to be damaging to the hands.

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 Plant
Oak Ridge, Tennessee

CENTRAL SAFETY AND HEALTH COMMITTEE MEETING MINUTES
March 8, 1949

Attendance: C. A. Babcock
R. M. Batch
C. K. Beck
S. Cromer (represented by
G. A. Garrett)
A. P. Dunlap
J. A. Elkins
J. J. Fritz
H. R. House
A. F. Becher
W. L. Richardson
W. B. Humes
J. S. Lyon
J. J. McCarthy
J. P. Murray
D. H. Riley
B. Speyers
R. R. Wolf
General Foreman (4) (Represented by
W. H. Taylor)
S. Visner

Absent: F. W. Hurd

The meeting of the Central Safety and Health Committee was called to order by Mr. W. B. Humes, K-25 Plant Superintendent, at 10:10 A. M.

OLD BUSINESS

Correction of February Minutes

1. The tolerance figure which is tentatively being used for beryllium should have been 0.005 Mg/l instead of 1.005 Mg/l. (See review of Industrial Hygiene Activities, page 3).

2. The report mentioned by Dr. Beck showing a correlation between skin cancer and temperature should have been recorded in the minutes as sun radiation instead of temperature. (see page 3, Supervisory and Employee Questions on Cancer).

NEW BUSINESS

Fluorine north of K-1401 Building

Dr. C. K. Beck reported a strong odor of fluorine was noticeable at times in the north end of K-1401 Building and inquired whether or not the Medical Department had ever taken any air samples at a time when the odor was noticeable to determine if a hazard existed. Dr. Lyon reported that none had been taken to his knowledge. Mr. Humes was of the opinion that purging of amounts sufficiently heavy to be readily smelled should be discontinued. Messrs. Murray and Garrett were requested to check all operations using fluorine especially in the area north of K-1401 to eliminate insofar as practical to do so the possibility of releasing this toxic material.

Emergency Vehicle Right-of-Way

The Safety Department reported that a disregard of the right-of-way for emergency vehicles has been noted on numerous occasions. Mr. Humes requested the committee members to call attention to this in their safety meetings and instruct all vehicle operators to pull over and stop when in the path of emergency vehicles.

Central Safety and Health Committee Meeting Minutes

March 8, 1949

Accident Experience

Mr. A. P. Dunlap reviewed the major injuries for February involving L. Templeton and N. Hendrix.

Review and Discussion of Proposed Bulletin - "Information on Radiation Exposure"

A discussion of the proposed series of questions and answers relative to incidence of cancer at K-25, prepared for release in certain instances to assure employees due regard was being given to health considerations followed. Dr. Beck proposed two amendments to the paper which will be incorporated in the final draft. In general the committee agreed with the proposal. Copies will be given to members of this committee only who will distribute them to supervisors concerned.

Radiation Exposure Due to X-Rays

A discussion of the probable chronic effects of x-rays as a result of routine clinical examination developed and it was Dr. Lyon's opinion that exposure due to the above conditions does not present a health problem as presently handled.

Identification of Radiation Hazards

Proposed procedure was approved for issuance. As soon as printed tags are available in Stores, this SPP will be distributed.

Over-Tolerance Hand and Body Contamination

Dr. Beck raised a question on the problem encountered in holding employees on the plant after shift change time to decontaminate to below tolerance levels. It was the consensus of the group that such cases should be handled on an individual basis and employees should be encouraged to make frequent checks during the work period to avoid last minute clean-up difficulties. Employees are not to be given pay for time spent after regular working hours to effect hand decontamination.

The Radiation Hazards Department announced that washing hands with a paste of bicarbonate of soda and soap had proven the most successful method yet developed in removing alpha contamination and recommended its use. A listing of hand monitoring locations in the plant was distributed, extra copies available by request to C. L. Gritzner, Building K-1034, telephone 8523.

Industrial Hygiene Activities - Discussed by Dr. J. S. Lyon

Urinalysis

One hundred ninety-one (191) analysis for uranium were made, the results of which were all below the level associated with damage. Thirteen (13) analysis revealed traces of U, seven (7) of which were picked up on periodic health re-checks, six (6) were attributed to persons being in the vicinity of a material release.

All of the above cases were negative on follow-up sampling except one involving a laboratory worker. Further results on this case is pending follow-up.

Forty (40) analysis for mercury were made; thirty-seven (37) were below the maximum allowable concentration; three (3) were above, but not in a range associated with damage. These three (3) were on individuals assigned as follows: (1) laboratory worker; (2) vacuum pump shop - these cases being followed in an attempt to determine type of exposure.

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March 8, 1949

Alpha count on one hundred thirty-six (136) samples were made; one hundred thirty-one (131) were negative. Five (5) showed some activity. These were on individuals from Engineering Development Division and Uranium Control Department. All analysis were below a level where clinical damage may be observed.

Eighty-five (85) analysis for fluoride were made, all of which were below the maximum allowable concentration of 2 mg/l.

Twenty (20) analyses for beryllium on Fairchild employees were observed to be below the 0.005 level.

Two (2) analysis for lead - negative.

Two (2) analysis for Pu - Lab. J. employees - negative

Air Analysis

Mercury - Of the one hundred sixteen (116) air samples taken, all were below the maximum allowable concentration except five (5) samples taken in Labs. A, B and C:- 1 - result of a spill; 4 - mercury in an oven vaporized.

Uranium - all below MAC

Monomer - K-413 Building, all below MAC

Nitrous Oxide - Five (5) samples were taken, one of which was over the MAC. This was found in the decontamination chamber following removal of a tube bundle.

Hydro-carbons - All negative except occasional high readings noted at degreasing unit in K-1401 Special Shops Department.

HF - Of the four (4) samples taken, one was noted above the MAC. This occurred in the K-1303 Building during a decontamination operation.

Health Physics Activities

Mr. S. Visner reported on Health Physics activities for the month, summarizing results as follows:

Air, Water and Mud Survey Program

Continuous air samples were taken in seventeen (17) locations during the month. In most cases these samples were taken on a daily basis; however, in some instances samples were of jobs and other special spot samples that were of approximately six hour duration. Fourteen (14) cases of above tolerance air samples were reported. The above tolerance samples may be divided as follows:

K-1405 - Five (5) due to vibrator reactor near spray tank

K-1410 - Five (5)

Cylinder Head Repair Shop - Two (2)

K-1024 Building - One (1)

Cascade Service Jobs - One (1) A. C. Pump cleaning

In all cases the above tolerance activity can be attributed to specific operations which have been proven by spot samples to be a source of high air contamination and therefore, respiratory protective equipment is used by the operating personnel at these times.

Central Safety and Health Committee Meeting Minutes

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Beta activity in the K-25 drinking water showed seven small peaks during the period of January 15th to February 15th, ranging from 56 ± 22 c/100 ml to 151 ± 50 c/100 ml.

Personnel Monitoring

An average of two hundred ninety (290) film badges per week were used for personnel monitoring during the month. None were reported above the tolerance of 500 mrep per week. In addition to film badges an average of two hundred thirty-four (234) pairs of pocket chambers per week were worn by employees. None were above the 100 mr/day tolerance.

Review of Safety Activities - W. L. Richardson

I. Promotion and Education

a. Poster and billboard materials being pointed toward subject matter which ties in with monthly theme highlighting the major factors contributing to plant injuries. During the winter months due to inclement weather billboard material of necessity will be curtailed, plans provide for immediate blanking out of obsolescent safety messages and insertion of a slogan until weather allows for replacement of subject matter.

b. Safety Films

An inventory of plant films indicates majority of film obsolete due to complete plant coverage of war time setting and appeal. Loan of new film from AEC, UCC, Insurance Companies, and UT has provided a fair backlog to fill plant requirements; however, orders for additions to plant library are being prepared. Scheduled for plant use in March is a new film titled "Miracle in Paradise Valley". While it is not pointed toward industrial safety activity specifically, it portrays the general attitude of people exposed to safety for the first time and their reactions thereto. Professional acting and script preparation makes this an outstanding film. A series of films dealing with safety and foremanship will be available at the K-25 Plant in April when it is planned to review the responsibility of employees for the perpetuation of the Plant Accident Prevention Program.

A new idea has been advanced by the National Safety Council to promote interest in Accident Prevention. Two popular radio movie stars, "George Burns and Gracie Allen", have been signed up to do a weekly radio skit portraying "Gracie" in trouble at home due to careless acts resulting in injury. Keyed to this appeal will be posters and promotional material paraphrasing the slogan "Don't be a Gracie". Order has been placed for delivery of material. At the present time we are held up pending availability of stock material; however, we are planning to make use of plant materials with this theme.

✓ c. Safety Award Plan

Approval of a formal safety award plan to include an accumulation of awards with each 1,500,000 man hours worked without a disallowing injury until record is broken is pending. Upon approval publicity will be directed toward this goal through the "Carbide Courier", Plant Safety Train idea and exhibition of sample awards throughout the plant.

Central Safety and Health Committee Meeting Minutes

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In effectuating the above plan it is felt we can (1) explain individual responsibility of each employee in the prosecution of a successful safety program; (2) stimulate an interest in safe work performance by highlighting acts of carelessness and absent-mindedness; and (3) provide an incentive and encourage competition by emphasizing over-all plant performance.

II. Inspection and Field Work

a. Plant safety committees generally provide for routine housekeeping inspections of facilities; however, supervision is not sufficiently familiar with or has not been convinced of the over-all hazards of operations to properly train personnel to recognize hazards as evidenced by (1) use of defective electrical equipment; (2) storage and handling of hazardous materials; (3) repetitive cases of eye injuries due to working in areas where flying particles are present without requiring safety spectacles; (4) repeated strains, sprains, etc. due to improper lifting, failure to use mechanical means to do the job or physical limitations of employees which require their work assignments be studied to prevent injury or employees be transferred, referred for further treatment, etc.; (5) failure to use proper protective equipment or not using protective equipment has been a causative factor in many accidents - lack of knowledge of the use and limitations of plant protective equipment is evident in handling spills, executing work permits for routine maintenance, performing routine operations, etc.

b. Job housekeeping during maintenance and construction activities is poor due to lack of job planning to lay out equipment and facilities in an orderly fashion and clean-up of work areas during progress of work. This phase of the program requires repetitive follow-up to convince employees.

c. Job planning deficiencies are also evident during field work performed by various crafts - climbing on office furniture, use of boxes, barrels, etc. as scaffolds are frequently noted. Failure to properly isolate construction work in congested areas results in pedestrian and vehicular traffic through such work areas and unnecessary exposure to personnel.

d. Repetitive accidents involving company motor vehicles occur due to lack of extreme care in parking, backing, leaving parking areas, broken entrance doors all generally due to an attitude of indifference in protecting Company equipment.

e. Safety committees have been re-organized where necessary to provide for a flow of information between the various committee levels. In general information has started to filter down through the safety committees to acquaint all plant employees with the Company policy relative to various phases of the program and conversely to allow employees at lower levels to refer safety suggestions to higher level committees for action. Much improvement has been made and it is felt that timely subjects originating with the Central Safety Committee for dissemination and action throughout the plant organization will make the program self perpetuating.

f. Design and installation of standard guards for various types of plant equipment is proceeding too slowly. A general reaction of "it can't happen here" is reflected in supervisor's attitudes toward this subject.

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g. Identification of compressed gas cylinders and a drive to clean-up all unidentified cylinders is underway. Standard Reference Information relative to storage, handling and use thereof is being prepared.

h. Test, inspection and/or minor field repair of corded electrical equipment continue. Due to emphasis placed on elimination of defective or hazardous equipment, percentages of rejects, etc. has been reduced. This has allowed for a re-scheduling of such equipment at longer intervals. Since Receiving Department has assumed responsibility for maintenance of office equipment, we have arranged with them to make necessary repairs to machines from the motor terminal block out to the attachment plug. It is expected after completion of a complete plant inspection and repair, maintenance of the equipment will be at a minimum. In addition, three-wire cords with grounded type attachment plugs are being provided where receptacles have been changed by the Engineering Department. Extension of the test program on corded equipment to include instrument equipment has been accomplished. A short training session to acquaint Instrument Department supervision with requirements for installation and repair of electrical equipment is under way. Work orders to accomplish necessary field tests and repairs have been completed.

III. Protective Equipment

The method by which safety equipment is requisitioned, stocked and issued has been revised to provide for more efficient handling, closer control and the necessary property accountability. Those items of safety equipment which are normally issued on a temporary loan basis by the tool rooms are now stocked by the Tool Department rather than by the Stores Department. Repair and replacement parts, including gas mask canisters, are stocked by the Stores Department.

The types of equipment to be made available through the tool rooms are determined by the Safety Department, which initiates the initial procurement requisitions. Subsequent procurement requisitions are initiated by the Tool Department, which determines order points through usage.

Prior to the inauguration of the revised procedure and the physical transfer of the various items of safety equipment to the Tool Department, the Stores Department safety equipment stocks were carefully surveyed, the order points adjusted, where necessary, and obsolete or excess stocks surplused.

The bulk of the items surplused represented the residue of bulk transfers received from other plants during and immediately after the war. The next largest group represented items which are no longer used due to changes in plant operation or because more efficient equipment has recently become available. A very small amount of the surplused material represented excess stocks.

Every possible effort has been made to expedite the delivery of the new style impermeable suits on order from the U. S. Army and long overdue. The present plant supply of impermeable suits is far from adequate due to failure of the 1942 and 1944 types through wear and age.

Special welder's gas masks continued in short supply. Development work on this mask originally scheduled by the U. S. Army is now being carried on by several commercial sources. Suitable masks of this type are expected in the next few weeks.

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March 8, 1949

To provide for identification of "free issue" footwear supplied those employees working in areas subject to contamination, factory applied "yellow" toe caps have been developed for six-inch leather safety shoes, six inch rubber safety shoes and rubbers. It is expected that in the near future the ten inch rubber pull over boot will also be available with the "yellow toe".

Final results of mask testing program at K-25 involving the U. S. Combat Mask are nearing completion pending receipt of an apparatus report from the Laboratory Division. Extension of this work to check canister life expectancy and effects of age and deterioration due to moisture, as well as tests in dust atmospheres has been requested of the Y-12 Plant. No action has been taken as yet in this regard.

Tests of electrician's protective equipment have been re-scheduled due to simplified handling system which should reduce overall test work and increase life expectancy of equipment due to less frequent "hi-potting".

IV. Rescue Squads and Emergency Stations

a. Installation of emergency supply stations, located at strategic locations throughout the plant have been completed. It is expected that a considerable amount of equipment presently stored throughout the plant will be re-called and overall inventories re-established on the basis of present plant needs. More effective control of items of emergency equipment will result in assurance that usable supplies will be available in time of emergency.

b. Plans and specifications for design of a body for the proposed plant emergency vehicle are nearing completion. It is expected that overall cost estimates can be available within thirty days.

c. Rescue squad training continues as per schedule. A review of training results during February revealed a large percentage of replacement of squad members, which was necessary because of plant reductions. This necessitated review work to bring new members up to date. Preliminary training has included rescue tactics, including review of first aid fundamentals, with emphasis on transportation and rescue use of personal protective equipment and problem drills under simulated conditions of emergency. Special hazards study included a study of properties of hazardous materials, (toxic, corrosive, and radioactive) locations where handled, stored or processed. Explanation of hazardous characteristics during conditions of emergency and training in the use of various types of detection devices, use and limitations of protective equipment as related to specific materials. A survey of hazardous areas within the plant was conducted in cooperation with the responsible supervisors in those areas to acquaint squad members with physical layout, local plans and nature of hazards. Fire training has included basic fundamentals of fire fighting and control. During February, test drills were conducted to check squad proficiency. It was decided to concentrate on the use of personal protective devices, rescue tactics, and fire training during March.

d. Local emergency plans are being re-evaluated on the basis of present operations. Several divisions have completed revision; however, considerable work is necessary to assure that local groups are organized to act promptly in case of emergency to minimize spread or rushrooming of emergencies and to work efficiently with the other plant emergency groups. Emphasis on use of

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protective equipment, including training in use of various types of respiratory devices is going forward. Delegation of specific responsibilities to designated individuals in these local areas must be included as well as plans for evacuation of adjacent facilities in case of spread of the emergency are sorely needed. When local emergency plans have been effectuated to assure first-hand control of the incident and plant rescue squads have completed necessary training, the overall plant emergency plan which should incorporate the activities of all groups and provide a clearcut assignment of responsibility will be in order.

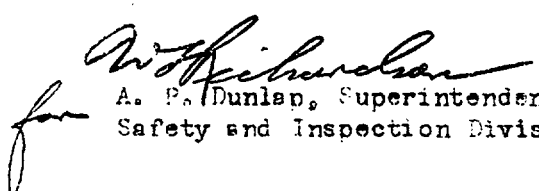
V. Standard Reference Information covering all items of protective equipment, safe practice for plant reference, and safety standards relative to test, inspection and/or repairs to protective equipment is nearing completion.

Review of Fire Prevention Activities - W. L. Richardson

Material was handed out for later review by group giving analysis of plant fire experience for 1946, 1947, 1948, together with a listing of the principal items requiring correction as disclosed from fire inspection records for the past six months.

Additional copies of this may be secured by request to F. Buckalew, Building K-1034, telephone 8-9705. It was the recommendation of the 1948 Fire Prevention Committee that material such as this be used in safety meetings from time to time throughout the year.

The meeting adjourned at 11:50 A. M.


A. P. Dunlap, Superintendent
Safety and Inspection Division

APD:AFB:mrh

cc: Mr. C. E. Center
Mr. T. E. Lane
Mr. O. Rinehart
Mr. C. E. Larson
Mr. C. N. Rucker

INTER-COMPANY CORRESPONDENCE

Post Office Box P
OAK RIDGE, TENN.

INSERT) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION _____
NAME

TO Mr. A. F. Becher
LOCATION K-1034

DATE March 10, 1949

ANSWERING LETTER DATE

ATTENTION
COPY TO File

SUBJECT

The following is a summary of the material presented at the Central Safety and Health Committee Meeting on March 8, 1949. In addition, other material was presented which you have taken notes on.

Air, Water and Mud Survey Program

Continuous air samples were taken in seventeen (17) locations during the month. In most cases, these samples were taken on a daily basis; however, in some instances samples were of jobs and other special spot samples that were of approximately six hour duration. Fourteen (14) cases of above tolerance air samples were reported. The above tolerance samples may be divided as follows:

K-1405	5	Due to vibrator reactor near —
K-1410	5	spray tank.
Cylinder Head Repair Shop	2	
K-1024 Building	1	
Cascade Service Jobs	1	A.C. Pump cleaning

In all cases, the above tolerance activity can be attributed to specific operations which have been proven by spot samples to be a source of high air contamination and therefore, respiratory protective equipment is used by the operating personnel at these times.

Beta activity in the K-25 drinking water showed seven small peaks during the period of January 15th to February 15th, ranging from 56 ± 22 c/100 ml to 151 ± 60 c/100 ml.

Personnel Monitoring

An average of 290 film badges per week were used for personnel monitoring during the month. None were reported above the tolerance of 500 mrep per week. In addition to film badges, an average of 234 pairs of pocket chambers per week were worn by employees. None were above the 100 mr/day tolerance.

S. Visner
S. Visner

Radiation Hazards Department

SV:lja

SAFETY ACTIVITIES

I. PROMOTION AND EDUCATION

(a) Poster and billboard materials being pointed toward subject matter which ties in with monthly theme highlighting the major factors contributing to plant injuries. During the winter months due to inclement weather billboard material of necessity will be curtailed, plans provide for immediate blanking out of obsolescent safety messages and insertion of a slogan until weather allows for replacement of subject matter.

(b) Safety Films.

An inventory of plant films indicates majority of film obsolete due to complete plant coverage of war time setting and appeal. Loan of new film from A.E.C., U.C.C., Insurance companies and U. T. has provided a fair backlog to fill plant requirements; however, orders for additions to plant library being prepared. Scheduled for plant use in March is a new film titled Miracle in "Paradise Valley," while it is not pointed toward industrial safety activity specifically, it portrays the general attitude of people exposed to safety for the first time and their reactions thereto. Professional acting and script preparation makes this an outstanding film (see brochure). A series of training films dealing with safety and foremanship will be available at the K-25 Plant in April when it is planned to review the responsibility of employees for the perpetuation of the Plant Accident Prevention Program.

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In effectuating the above plan it is felt we can:

- (1) Explain individual responsibility of each employee in the prosecution of a successful safety program.
- (2) Stimulate an interest in safe work performance by highlighting acts of carelessness and absentmindedness.
- (3) Provide an incentive and encourage competition by emphasizing over-all plant performance.

II. INSPECTION AND FIELD WORK

(a) Plant safety committees generally provide for routine housekeeping inspections of facilities; however, supervision is not sufficiently familiar with or has not been convinced of the over-all hazards of operations to properly train personnel to recognize hazards as evidenced by:

- (1) Use of defective electrical equipment.
- (2) Storage and handling of hazardous materials.
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- (4) Repeated strains, sprains, etc., due to improper lifting, failure to use mechanical means to do the job or physical limitations of employees which require their work assignments be studied to prevent injury or employees be transferred, referred for further treatment, etc.

SAFETY ACTIVITIES

Page Three

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(5) Failure to use proper protective equipment or not using protective equipment has been a causative factor in many accidents--Lack of knowledge of the use and limitations of plant protective equipment is evident in handling spills, executing work permits for routine maintenance, performing routine operations, etc.

(b) Job Housekeeping during maintenance and construction activities is poor due to lack of job planning to lay out equipment and facilities in an orderly fashion and cleanup of work areas during progress of work. This phase of the program requires repetitive follow up to convince employees.

(c) Job planning deficiencies are also evident during field work performed by various crafts: climbing on office furniture, use of boxes, barrels, etc., as scaffolds are frequently noted. Failure to properly isolate construction work in congested areas results in pedestrian and vehicular traffic through such work areas and unnecessary exposure to personnel.

(d) Repetitive accidents involving company motor vehicles occur due to lack of extreme care in parking, backing, leaving parking areas, broken entrance doors all generally due to an attitude of indifference in protecting company equipment.

(e) Safety committee have been reorganized where necessary to provide for a flow of information between the various committee levels. In general, information has started to filter down through the safety committees to acquaint all plant employees with the company policy relative to various phases of the program and conversely to allow employees at lower levels to refer safety suggestions to higher level committees for action. Much improvement has been made and it is felt that timely subjects originating with the Central Safety Committee for dissemination and action throughout the plant organization will make the program self perpetuating.

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The types of equipment to be made available through the Tool Rooms are determined by the Safety Department, which initiates the initial procurement requisitions. Subsequent procurement requisitions are initiated by the Tool Department, which determines order points through usage.

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To provide for identification of "free issue" footwear supplied those employees working in areas subject to contamination, factory applied "yellow" toe caps have been developed for six-inch leather safety shoes, six inch rubber safety shoes and over-the-shoe storm rubbers. It is expected that in the near future the ten-inch over-the-shoe boot will also be available with the yellow "coded" toe.

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- a. Installation of emergency supply stations, located at strategic locations throughout the plant have been completed. It is expected that a considerable amount of equipment presently stored throughout the plant will be recalled and overall inventories re-established on the basis of present plant needs. More effective control of items of emergency equipment will result in assurance that usable supplies will be available in time of emergency.

Stomach
Lehigh
H. T. T.

- b. Plans and specifications for design of a body for the proposed plant emergency vehicle are nearing completion. It is expected that overall cost estimates can be made within thirty days.
- c. Rescue squad training continues as per schedule. A review of training results during February revealed a large percentage of replacement of squad members, which was necessary because of plant reductions. This necessitated review work to bring new members up to date. Preliminary training has included rescue tactics, including review of first aid fundamentals, with emphasis on transportation and rescue use of personal protective equipment and problem drills under simulated conditions of emergency. Special hazards study included a study of properties of hazardous materials, (toxic, corrosive and radioactive) locations where handled, stored or processed. Explanation of hazardous characteristics during conditions of emergency and training in the use of various types of detection devices, use and limitations of protective equipment as related to specific materials. A survey of hazardous areas within the plant was conducted in cooperation with the responsible supervisors in those areas to acquaint squad members with physical layout, local plans and nature of hazards. Fire training has included basic fundamentals of fire fighting and control. During February, test drills were conducted to check squad proficiency. It was decided to concentrate on use of personal protective devices, rescue tactics and fire training during March.
- d. Local emergency plans are being re-evaluated on the basis of present operations. Several divisions have completed revision; however, considerable work is necessary to assure that local groups are organized to act promptly in case of emergency to minimize spread or mushrooming of emergencies and to work efficiently with the other

plant emergency groups. Emphasis on use of protective equipment, including training in use of various types of respiratory devices is going forward. Delegation of specific responsibilities to designated individuals in these local areas must be included as well as plans for evacuation of adjacent facilities in case of spread of the emergency are sorely needed. When local emergency plans have been effectuated to assure first-hand control of the incident and plant rescue squads have completed necessary training, the overall plant emergency plan which should incorporate the activities of all groups and provide a clearcut assignment of responsibility will be in order.

- V. Standard Reference Information, covering all items of protective equipment, safe practice for plant reference, and safety standards relative to test, inspection and/or repairs to protective equipment, is nearing completion.

RESTRICTED

INTER - COMPANY CORRESPONDENCE

ert
me COMPANY Carbide and Carbon Chemicals Corporation

Post Office Box P
LOCATION Oak Ridge, Tennessee

To: Mr. C. A. Babcock
Mr. R. M. Batch
Dr. C. K. Beck
Mr. S. Cromer
Mr. J. A. Elkins
Mr. J. J. Fritz
Mr. H. R. House
Mr. A. P. Huber
Mr. W. B. Humes
Dr. F. W. Hurd
Mr. J. J. McCarthy
Mr. J. P. Murray
Mr. D. H. Riley
Mr. B. Speyers
Mr. R. R. Wolf
General Foremen

Date: March 31, 1949

Subject: Information on Radiation
Exposure

In the last Central Safety and Health Committee Meeting the attached memorandum, covering "General Information on Radiation Exposure," was approved for distribution to supervisors concerned through the division superintendent. Five copies are transmitted herewith, and additional copies are available on request to the writer (telephone 8231).

UNCLASSIFIED

Classification changed to: _____
(level and category)

ABC of (ADD) signature (initials) Date
4/27/45

ADD signature (initials) Date
4/27/45

A. P. Dunlap
A. P. Dunlap

APD:mgvk

Attachments (5)

cc: Mr. A. F. Becher
Dr. J. S. Lyon
Mr. W. L. Richardson
Mr. S. Visner

RESTRICTED



~~RESTRICTED~~

CARBIDE AND CARBON CHEMICALS CORPORATION
POST OFFICE BOX P
OAK RIDGE, TENNESSEE
K-25 PLANT

Memorandum: General Information on Radiation Exposure

The purpose of this memorandum is to answer recurring questions by employees who express concern about their own health or who are seeking assurance that working conditions at the K-25 Plant are safe from the standpoint of potential injury due to radiation exposure. Further, it is to emphasize that the radiation program is more than adequate to protect plant employees, provided individual cooperation is obtained.

Even though it is generally understood, it is important to stress that there are two types of problems which arise in working with radioactive materials processed or handled at this plant; namely, beta-gamma radiation (penetrating type) and alpha radiation (non-penetrating type). An example of the former is gamma radiation which is emitted from a radium source. Here the exposure to the individual is dependent on the amount of radiation which penetrates the body. Protective measures are adequate shielding and maintenance of an adequate distance between the radiation source and the individual. Locations in this category within K-25 are few in number; areas are posted and personnel involved are under constant surveillance for even remote possibilities of injurious exposure. The radiation intensity at any point is routinely measured by suitable instruments; also the type and quantity of radiation that any individual receives is routinely measured with appropriate personnel monitoring instruments, such as film badges and pocket chambers. The second type of radiation mentioned above (alpha) is quite different in that it can only enter the body by ingestion, inhalation or through breaks in the skin. In other words, there is no significant hazard to the individual as long as alpha particles remain outside the body. Since this type radiation cannot penetrate the skin, prime concern is to avoid inhalation and ingestion of radioactive materials and the contamination of wounds with such materials.

Generally speaking, the main consideration at this plant is alpha radiation, which is present whenever work areas are contaminated with process material. Protection is secured through prescribed personal hygiene measures, through prompt decontamination as necessary and through proper application of protective equipment, such as masks, coveralls, gloves, etc. As in the case of penetrating type radiation, instruments are available to detect radioactive materials in water, air or on surfaces in amounts far below that which is considered "tolerable."

It is relatively a simple matter to prevent exposures of any degree to process materials, and every effort is made to do so. Process materials in the vapor state are contained in closed systems, which are carefully purged before being opened. Where the material unavoidably gets into the atmosphere, respiratory protection is prescribed. The plant is continually monitored for radioactive dusts to insure that safe levels are maintained. As in the case of penetrating radiation, locations where alpha radiation exists are known and identified as necessary. It should be recognized that only about ten per cent of K-25 employees are involved in work with radioactive materials.

During the last six months it has been observed that there are certain recurring questions concerning radiation exposures which have been posed directly by

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the employee to his supervisor or have been brought up in conjunction with safety educational work carried on jointly by supervision and the Safety and Inspection Division. The individual questions have been carefully analyzed and are presented below.

Question No. 1

Is there at present or has there been any cancer case involving a K-25 employee which is in any way the result of his employment at this plant?

Answer

To the best of our knowledge, there have been none. Individual investigations of cancer cases involving plant employees are made.

A recent study reported by J. Woshman, "On the Incidence of Cancer in Oak Ridge, Tennessee," July 2, 1948, revealed that the incidence of cancer in Oak Ridge is significantly lower than the national rate. Furthermore, cancer incidence among employees in restricted areas was as low as among individuals not working in such areas. In fact a greater percentage of the latter group had lung cancer than in the first group. Some experts attribute the increase in lung cancer in the nation as a whole to the increase in smoking.

Question No. 2

Is it possible for a person to develop cancer of the lung from an exposure to the radioactive elements in this plant?

Answer

There is no clinical evidence that cancer of the lung has in any case resulted from the inhalation of uranium materials. However, it is theoretically possible to develop cancer from exposure to radioactive materials on the basis that such materials other than uranium have produced injurious effects; X rays and gamma rays have produced skin cancer and leukemia; ingested radium has caused bone cancer; and also there is evidence of a higher incidence of lung cancer among miners exposed to radioactive radon gas. It should be pointed out that in view of the protective and preventive program in the K-25 Plant, the possibility of injurious exposure materials is very remote.

Everyone knows that there are millions of dollars being spent annually in this country on cancer research, and this emphasizes how little is actually known about the specific causes of any particular type of cancer. For this reason radiation and contamination levels are maintained sufficiently low so that temporary exposure up to ten or one hundred times the permissible figure would probably not be injurious, provided such exposures are not routinely repeated. The fact that small quantities of radiation can be tolerated is demonstrated by the fact that since the beginning of time man has been continually exposed to so-called background radiation, which can be detected by our radiation detection instruments. This background radiation consists of cosmic rays and radon and thoron, normally present in the air.

Question No. 3

If the answer to Question No. 2 is yes, how frequent or severe exposure would be required?

Answer

Since there have been no cases of cancer associated with uranium, the frequency and severity of exposure which will definitely develop cancer have not been determined. There is every intention to continue with the policy of minimizing the hazard rather than to establish "tolerances" which condone higher levels of radiation exposure and a lesser safety factor.

Question No. 4

Does the Medical Department definitely determine that a person is not in danger of developing cancer or other ills from an exposure to materials in this plant through the annual industrial health examination and through supervisory checks after possible exposure?

Answer

The purpose of the examination referred to is to determine evidences of ill health and symptoms or conditions conducive to illness, cancer being no exception. Our Medical Department utilizes modern techniques and facilities to diagnose conditions reflecting ill health, particularly regarding the special health problems of this plant. Every effort is made through periodic industrial examinations to discover any conditions adversely affecting the health of our employees, and in questionable cases the consultation of specialists is enlisted.

It is desirable to distinguish between the major type of exposure, which is reflected by definite symptoms such as nausea, vomiting or irritation of the respiratory tract, and the low level exposures, which may not be reflected in any such symptoms and which after continued exposure for a long period of time may lead to some chronic condition or major ailment. The more serious conditions can be readily diagnosed in the case of the major exposure. In order to evaluate the extent of minor exposures of individuals, it is necessary to estimate the quantity of material ingested or the quantity of radiation received. This is accomplished by means of certain clinical and laboratory tests and also by evaluating the environmental working conditions. This is routinely done in the plant; and whenever evidence is uncovered of possible low level exposures, immediate corrective steps are taken to avoid repeated exposure, such as the prescription of protective equipment, cleanup of contamination, and control of individual work assignment. As previously stated, exposure for a limited time to low level radioactivity is not considered harmful; however, it is our practice to prevent any exposure of individuals to even "tolerable" levels of radiation within practical limitations.

Question No. 5

Is it possible for a person to develop cancer or other ills from one large exposure to radioactive materials handled here?

Answer

It does not appear probable that cancer would result from one large exposure to uranium materials handled here. As previously stated, there is no clinical evidence to this effect. In major exposures to process materials, the heavy metal

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poisoning due to uranium and the toxic effects of the fluorine component may cause injury to the individual on one large exposure. Such effects normally are immediately evident to the examining physician and may be considered comparable to those of many toxic or poisonous materials processed or handled in industry today. Experience at this plant has not revealed any illness which has developed from the radioactive properties of uranium as the result of one major exposure or cumulative exposures, although several injuries due to the chemical toxicity of the material have occurred. None of these injuries were disabling.

Question No. 6

If the answer to Question 5 is yes, how great an exposure would be required and how long would be necessary to definitely determine whether harmful after-effects were going to result?

Answer

Although the answer to Question 5 is no, in project cases (Manhattan District--now A.E.C.) where definite injury has resulted to individuals on one major exposure due to the heavy uranium poisoning and toxic effects of fluorides, the individuals involved were inadvertently exposed without respiratory equipment for several minutes to a heavy concentration of uranium compounds in the atmosphere, which was easily perceptible. The effects of such exposures would be immediately obvious to the medical staff.

Question No. 7

If an employee is definitely exposed and is immediately sent to the Dispensary for examination and the results are negative, does this mean that the employee will never develop an illness as a result of this exposure?

Answer

It is the opinion of radio-biologists and medical authorities that following any single exposure, regardless of magnitude, wherein the clinical, laboratory and environmental findings are negative, there will be no resultant illness to the individual concerned.

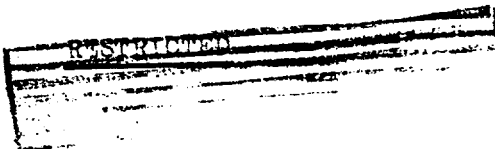
Question No. 8

If a person should develop cancer or other illnesses, is it possible to determine whether the illness results from exposure to radioactive material?

Answer

In most cases it is not possible to refer a cancerous condition, as well as many other types of illnesses, to specific causative factors; however, the absence of certain factors such as radioactive materials in the vital organs can definitely eliminate association with radiation exposure as the causative factor. Example: autopsy or exploratory surgery results will positively reveal existent radioactive material in any body tissue.

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Question No. 9

When can the Medical Department determine with certainty that no harm has been done to an employee who was exposed during 1944 or prior to the existing radiation detection and decontamination program?

Answer

To the best of our knowledge no cases of radiation injury exist. During the period of time in question, the alpha activity of the uranium processed in the plant was much lower than at present. Thus, the radiation hazard from ingested uranium compounds at that time was for all practical purposes no more serious than the chemical toxicity hazard. Any acute conditions resulting from exposure during the period in question would have been detected by this time. Further for the period of time involved, during which the individual may have been exposed to low level or sub-acute conditions, there is no clinical evidence and little likelihood that injury has occurred. On the other hand, it is again emphasized that this plant is now being viewed as a long-range operation; thus it is becoming increasingly important that sufficiently low radioactivity levels be maintained in the plant so that cumulative chronic conditions will not occur over a long period of time, even a complete life span. Proper work techniques and protective devices are available so that every job in the plant involving radioactive materials can be performed in a safe manner. As improved methods of hazard detection, improved protective equipment, as well as improved medical diagnostic techniques have been developed, they are applied to reduce occupational hazards to well below established "tolerable" conditions. This is in line with our practice of continually reducing all occupational hazards to a minimum.

Question No. 10

Are we certain that respiratory protective equipment provided precludes inhalation of radioactive materials?

Answer

Tests with prescribed types of respiratory protective devices show that if properly used no inhalation of radioactive material will result.

Question No. 11

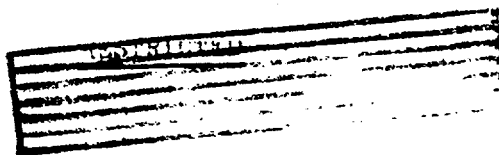
What are the effects of leaving the plant premises with contamination on hands and clothing (with regard to our families)?

Answer

As stated before in this memorandum, it is necessary to get the contamination inside the body before there can be any effect. As pointed out previously, minute exposure to radioactive materials, as would be the case in these instances, would not have any adverse effect if not routinely repeated. It is plant practice to minimize contamination of personnel and their clothing and also to routinely monitor personnel for contamination and reduce such accidental exposures to a minimum.

It is plant practice to prevent employees from leaving the plant with potentially injurious quantities of contamination on the clothing and body. Active participation by the individual must be depended upon to supplement plant controls, which include personal hygiene regulations and prescribed personnel monitoring.

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March 31, 1949



The Central Safety and Health Committee recognizes that the foregoing discussions of the employees' questions are not yes or no answers, as may have been requested; however, direct presentation of this basic information should allay certain misgivings which have apparently entered the minds of some of our employees. By means of a memorandum such as this, additional information for supervisory guidance will be made available to plant supervisors as the need arises and information becomes available.

Considerable money is being spent and a large scale research program is in progress in the field of radio-biology, and it is recognized that at the time we do not have all the information to give more complete answers to the above questions. However, considering the nature of the material and the protective program in force, experts are of the opinion that the radiation hazard due to association with the processing of uranium compounds in this plant is no greater than the everyday risks in most other chemicals industries and probably no greater than the risks accepted during normal everyday life.

Central Safety and Health Committee

AGENDA

CENTRAL SAFETY AND HEALTH COMMITTEE

Meeting -- March 8, 1949

For the month of February

Review of Minutes of Last Meeting

W. B. Humes

Report of Health and Safety Activities
Industrial Hygiene and Medicine
Health Physics
Safety and Fire Prevention

J. S. Lyon
S. Visner
W. L. Richardson

Review of Accident Experience:

Major Injuries Name	Injury Date	Began Losing Time	Days Lost
(Gen. Maintenance)	2-7-49	2-12-49	2
(Process)	2-25-49	2-23-49 (still off)	3

B. Speyers

General Foreman

Non-Tab Major Injuries

(Mfg. Office)	2-7-49
(Ind'l. Relations)	2-16-49

J. A. Elkins

R. R. Wolf

	This Month	Last Month	This Year	1948 Cumulative
Frequency	2.83	1.29	2.02	2.82
Severity	.007	.001	.01	.02

244 industrial injuries, two disabling and five requiring work assignment in accordance with medical restriction.

10 motor vehicle accidents--estimated damage, \$170--frequency, 3.50.

2 fires--estimated damage \$20.

8 material releases reported, seven of which involved radioactive materials, one of which involved ammonia.

No reportable property damage accidents recorded.

Review and Discussion of Proposed Bulletin--"Information on Radiation Exposure"

A. P. Dunlap

Report of Subcommittee on Proposed Standard Practice Procedure--"Identification of Radiation Hazards"

S. Visner

Plant Emergency Plans
Lessons from Recent Ammonia Release
Status of Emergency Plans

A. P. Dunlap
A. F. Becher

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 PLANT
Oak Ridge, Tennessee

CENTRAL SAFETY AND HEALTH COMMITTEE MEETING MINUTES
February 15, 1949

Carbide and Carbon Chemicals Corporation Operating
Contractor for the U.S. Atomic Energy Commission.

Attendance:

C. A. Babcock	H. R. House
R. M. Batch	A. P. Huber
C. K. Beek	W. B. Humes
S. Cromer (Represented by	F. W. Hurd
G. A. Garrett)	J. J. McCarthy
A. P. Dunlap	J. P. Murray
J. A. Elkins	D. H. Riley, Jr.
J. J. Fritz	B. Speyers
G. S. Hensley	R. R. Wolf
✓ A. F. Becher	W. L. Richardson
J. S. Lyon	S. Visner

Mr. W. B. Humes, Plant Superintendent, opened the meeting at 10:05 a.m.

Correction of January Minutes

The name of the Committee should have been "Central Safety and Health Committee" in keeping with enlarged scope of the Committee.

Old Business

Identification of Radiation Hazards--The subcommittee appointed to study this matter was announced as follows: Messrs. J. A. Elkins, B. Speyers, J. P. Murray, A. P. Dunlap, and Dr. F. W. Hurd. This subcommittee will meet February 16, at 2:00 p.m., in Mr. Dunlap's office.

Emergency Passes--The "B" symbol previously proposed for identification of supervisory personnel has been deemed unnecessary and will not be used.

New Business

Accident Experience, February, 1949--Mr. Humes reviewed the safety record established by Plant employees and commented on its excellence, particularly for the past three months, during which time only three major injuries occurred and the frequency rates were 1.30, 1.21, and 1.29, respectively, for November, December, and January. The total number of injuries reported during the month of January was 232, as compared to 358 for the same month a year ago and 320 for the previous month. This represents a considerable reduction, provided all injuries are being reported. Twenty-three minor injury reports had not been received by the Safety Department on the seventh of the month (four working days), and it was requested that more attention be given to promptness in reporting. There was no significant change in motor vehicle accident experience as far as type or seriousness of accident was concerned. One accident involved personal injury when a vehicle skidded and overturned on the Power House road. There were two minor fires reported, and monetary loss was insignificant. There were no property damage accidents reported during the month. Results of the following personal accident investigations were reviewed:

Case (Reference Non-tabulatable Major Injury No. 43 $\frac{1}{2}$)

This case involved an alleged injury of an employee, which occurred on November 28. Subsequent investigation revealed that the divergent allegations made by the employee

did not substantiate an accident, and a definite medical opinion relating the employee's ailment to his alleged accident could not be obtained. It was agreed that this case should be considered non-tabulatable.

Case (Reference Major Injury No. 3)

This employee suffered a back injury, which he alleges resulted from an unwitnessed incident, when his foot slipped on a pipe nipple or coupling. The employee reported promptly to the Dispensary, and after treatment was assigned to other than his normal duties with consideration of medical restrictions which were prescribed. The employee returned to the Dispensary the next day for a follow-up visit and seemed to be getting along satisfactorily. On the following day, he did not report to the Dispensary as requested and worked the remainder of the week (Wednesday, Thursday and Friday) without seeking medical attention. During this time he assured his supervisor that his back seemed to be getting better; however, the following Monday the employee did not come to work. Subsequent examination on that day by the Plant Medical Department and an Oak Ridge consultant revealed that the employee's condition had become acute; therefore, the employee was sent home to rest and instructed to call the consultant to report progress. The employee was off work for two weeks. After considerable discussion, this case was accepted as a tabulatable major injury.

Case (Reference Major Injury No. 2)

This employee alleged that he got some dust in his eye on February 7 when he was leaving one of the process buildings. Since the incident caused him only momentary discomfort, he did not report to the Dispensary. Later in the evening the employee saw his own physician in Oak Ridge, who removed something from his eye. The next day the employee reported to the Plant Medical Department and was referred to an eye specialist in Oak Ridge for further treatment. After working all week with his eye protected and reporting to the attending physician periodically for treatment, the employee was hospitalized by the attending physician because eye ulceration was feared. The employee's condition improved sufficiently during the week-end to enable him to return to work on Monday. The question on this case was whether or not the employee would have been able to work on Saturday and Sunday. It was the Medical Department's opinion, based on advice of the consultant, that the employee should not have worked; hence the case became a tabulatable major injury. In this instance the Oak Ridge physician called the man's supervisor because he was having difficulty keeping the man hospitalized over the week-end. Following this, there was one or two telephone calls between other interested supervisors and the attending physician regarding whether or not the man could have worked over the week-end. It was emphasized that consulting physicians should be requested to deal with the Plant Medical Department rather than directly with supervision since the Medical Department is responsible for determining whether or not any injury is disabling and what the employee is not to do. On prescription of medical restrictions, job placement of injured employees is a joint responsibility of supervision and the Safety Department, the latter group being specifically responsible for the UCC Safety Handbook's being used as a guide to Corporation policy and as a basis for acceptance or rejection of any case on the Plant injury record.

Conclusions from review of the above cases were as follows:

1. Supervision should pay more attention to follow-up Dispensary visits, making sure that employees report to the Plant Medical Department as requested.

2. Similarly when employees are referred by the Dispensary to outside doctors the Medical Department (not supervision) should make sure that the consultant understands the history of each such case and the Plant policy of returning employees to suitable work, which can be performed without endangering the employee.
3. In determining whether or not a lost time injury should be taken on the Plant accident record, it is only necessary to determine whether or not the employee is able to perform a regularly established job in the Plant, which is open and available to him.

Review of Industrial Hygiene Activities


Dr. Lyon reviewed work done during January concerning air samples taken to check on Plant environment conditions affecting health. Results were in general negative involving checks for mercury, uranium, nickel, hydrogen fluoride, nitrous oxide, and trichlorethylene. Dr. Lyon also reported the results of urinalysis work. The group unanimously agreed that this type information is very much desired, and in the future Dr. Lyon will present to the group significant information which relates laboratory results directly to specific Plant areas involved.

The question was raised as to whether or not the Oak Ridge water was being treated with fluorides to prevent tooth decay. It was generally agreed that this might be a good place to try out such an experiment in view of the highly favorable results from same elsewhere. Dr. Lyon mentioned that one beryllium check was made and that the results were negative. There is no tolerance set on this metal, and present practice is to use as a basis 1.005 milligrams per litre.

Dr. Beck raised the question as to whether or not the Medical Department advised the employee of urinalysis findings in each case. Dr. Lyon said that they did not in any case on the first check; however, if the second check still shows up, they sometimes do. Dr. Lyon feels that to tell an employee would only unnecessarily alarm him and would serve no useful purpose.

Supervisory and Employee Questions on Cancer

Mr. Dunlap mentioned that there were numerous questions arising from employees as to whether or not a cancer may result from working in the plant. Dr. Beck said that even the lowest concentration of uranium has its effect on the body, but that it is not necessarily the forerunner of cancer. He mentioned that he had read a report recently which showed a definite correlation between skin cancer and temperature. This survey demonstrated that skin cancer is more prevalent in Southern cities where the temperature is higher than in Northern cities. It is also evident that continued abrasion of the skin has in certain cases produced cancer.


A. P. Dunlap, Superintendent
Safety and Inspection Division

WLR:ec

cc: Mr. C. E. Center
Mr. S. R. Sapirie (2)

INTER-COMPANY CORRESPONDENCE

(Insert Name) COMPANY Carbide and Carbon Chemicals Corporation LOCATION Post Office Box P Oak Ridge, Tennessee

to: Mr. C. A. Babcock
Mr. R. M. Batch
Dr. C. K. Beck
Mr. S. Cromer
Mr. J. A. Elkins
Mr. J. J. Fritz
Mr. H. R. House
Dr. F. W. Hurd
Mr. J. J. McCarthy

Mr. J. P. Murray
Mr. D. H. Riley, Jr.
Mr. B. Speyers
Mr. R. R. Wolf
General Foreman
Mr. A. F. Becher
Dr. J. S. Lyon
Mr. W. L. Richardson
Mr. S. Visner

Date: March 2, 1949

Subject: Information on Radiation Exposure

Recently in an employee safety meeting, at which some key Union representatives were in attendance, supervision was questioned extensively regarding the present illness of one of the instrument mechanics, who is the victim of an incurable lung cancer. The answers given were necessarily rather general and did not satisfy the group. Equally difficult questions have often been asked in numerous employee and supervisory meetings throughout the plant, which have been attended by representatives of the Radiation Hazards and Safety Departments. Several employees have mentioned the fact that there appears to be a higher incidence of cancer on the area and are apparently seeking reassurance that these cases are not job connected. There seems to be no particular evidence that this is inspired by the Union. We believe that the employees are individually concerned, more likely prompted by the rather comprehensive publicity which has recently been in newspapers. The recent article in the Oak Ridger relating to the Fifth Semiannual Report of the A.E.C. states without much reservation that cancer may result from overexposure to radioactive materials, and chronic effects from exposure to "overtolerance" conditions may result in serious injury or shortening of the life span.

Attached is a proposed memorandum which is recommended for distribution to all supervision concerned. This bulletin is written primarily to answer specific questions and to give reassurance to employees that working conditions at X-25 are in most respects safer than any chemical plant. Even more important, the answers incorporate the basic reasoning or "why" of the safety program as related to radiation. This bulletin is to be presented to the Central Safety and Health Committee for approval at the next meeting, which will be Tuesday, March 8. Specific comments and criticisms are requested at that time.

A. P. Dunlap
A. P. Dunlap, Superintendent
Safety and Inspection Division

APD:mgwk

Attachment

CARBIDE AND CARBON CHEMICALS CORPORATION
POST OFFICE BOX P
OAK RIDGE, TENNESSEE
K-25 PLANT

M E M O R A N D U M

To: All Supervisors

Date: February 24, 1949

From: Central Safety and Health Committee

Subject: General Information on Radiation Exposure

The purpose of this memorandum is to answer recurring questions by employees who express concern about their own health or who are seeking assurance that working conditions at the K-25 Plant are safe from the standpoint of potential injury due to radiation exposure. Further, it is to emphasize that the radiation program is more than adequate to protect plant employees, provided individual cooperation is obtained.

Even though it is generally understood, it is important to stress that there are two types of problems which arise in working with radioactive materials processed or handled at this plant; namely, beta-gamma radiation (penetrating type) and alpha radiation (non-penetrating type). An example of the former is gamma radiation which is emitted from a radium source. Here the danger to the individual is dependent on the amount of radiation which penetrates the body. Protective measures are adequate shielding and maintenance of an adequate distance between the radiation source and the individual. Locations in this category within K-25 are few in number; areas are posted and personnel involved are under constant surveillance for even remote possibilities of injurious exposure. The radiation intensity at any point is routinely measured by suitable instruments; also the type and quantity of radiation that any individual receives is routinely measured with appropriate personnel monitoring instruments, such as film badges and pocket chambers. The second type of radiation mentioned above (alpha) is quite different in that it can only enter the body by ingestion, inhalation or through breaks in the skin. In other words, there is no significant hazard to the individual as long as alpha particles remain outside the body. Since this type radiation cannot penetrate the skin, prime concern is to avoid inhalation and ingestion of radioactive materials and the contamination of wounds with such materials.

Generally speaking, the main consideration at this plant is alpha radiation, which is present whenever work areas are contaminated with process material. Protection is secured through prescribed personal hygiene, through prompt decontamination as necessary and through proper application of protective equipment, such as masks, coveralls, gloves, etc. As in the case of penetrating type radiation, instruments are available to detect radioactive materials in water, air or on surfaces in amounts far below that which is considered "tolerable."

It is relatively a simple matter to prevent exposures of any degree to process materials, and every effort is made to do so. Process materials in the vapor state are contained in closed systems, which are carefully purged before being opened. Where the material unavoidably gets into the atmosphere, respiratory protection is prescribed. The plant is continually monitored for radioactive dusts to insure that safe levels are maintained.

As in the case of penetrating radiation, locations where alpha radiation exists are known and identified as necessary. It should be recognized that only about ten per cent of K-25 employees are involved in work with radioactive materials.

During the last six months it has been observed that there are certain recurring questions concerning radiation exposures which have been posed directly by the employee to his supervisor or have been brought up in conjunction with safety educational work carried on jointly by supervision and the Safety and Inspection Division. The individual questions have been carefully analyzed and are presented below.

Question No. 1

Is there at present or has there been any cancer case involving a K-25 employee which is in any way the result of his employment at this plant?

Answer

To the best of our knowledge, there have been none. Individual investigations of cancer cases involving plant employees are made.

A recent study reported by J. Moshman, "On the Incidence of Cancer in Oak Ridge, Tennessee," July 2, 1948, revealed that the incidence of cancer in Oak Ridge is significantly lower than the national rate. Furthermore, cancer incidence among employees in restricted areas was as low as among individuals not working in such areas. In fact a greater percentage of the latter group had lung cancer than in the first group. Experts attribute the increase in lung cancer in the nation as a whole to the increase in smoking.

Question No. 2

Is it possible for a person to develop cancer of the lung from an exposure to the radioactive elements in this plant?

Answer

Theoretically yes, on the basis that radioactive materials other than uranium have produced injurious effects; X rays and gamma rays have produced skin cancer and leukemia; ingested radium has caused bone cancer; and also there is evidence of a higher incidence of lung cancer among miners exposed to radioactive radon gas. However, there is no clinical evidence on the project that cancer of the lung has in any case resulted from the inhalation of uranium materials such as those processed or handled at K-25. Everyone knows that there are millions of dollars being spent annually in this country on cancer research, and this emphasizes how little is actually known about the specific causes of any particular type of cancer. For this reason radiation and contamination levels are maintained sufficiently low so that temporary exposure up to ten or one hundred times the permissible figure would probably not be injurious, provided such exposures are not routinely repeated. The fact that small quantities of radiation can be tolerated is demonstrated by the fact that since the beginning of time man has been continually exposed to so-called background radiation, which can be detected by our radiation detection instruments. This background radiation consists of cosmic rays and radon and thoron, normally present in the air.

Question No. 3

If the answer to Question No. 2 is yes, how frequent or severe exposure would be required?

Answer

Since there have been no cases of cancer associated with uranium processed here, the frequency and severity of exposure which will definitely develop cancer has not been determined by actual experience at this plant. There is every intention to continue with the policy of minimizing the hazard rather than to establish "tolerances" which condone higher levels of radiation exposure and a lesser safety factor.

Question No. 4

Does the Medical Department definitely determine that a person is not in danger of developing cancer or other ills from an exposure to materials in this plant through the annual industrial health examination and through supervisory checks after possible exposure?

Answer

The purpose of the examination referred to is to determine evidences of ill health and symptoms or conditions conducive to illness, cancer being no exception. Our Medical Department utilizes modern techniques and facilities to diagnose conditions reflecting ill health, particularly regarding the special health problems of this plant. Every effort is made through periodic industrial examinations to discover any conditions adversely affecting the health of our employees, and in questionable cases the consultation of specialists is enlisted.

It is desirable to distinguish between the major type of exposure, which is reflected by definite symptoms such as nausea, vomiting or irritation of the respiratory tract, and the low level exposures, which may not be reflected in any such symptoms and which after continued exposure for a long period of time may lead to some chronic condition or major ailment. The more serious conditions can be readily diagnosed in the case of the major exposure. In order to evaluate the extent of minor exposures of individuals, it is necessary to estimate the quantity of material ingested or the quantity of radiation received. This is accomplished by means of certain clinical and laboratory tests and also by evaluating the environmental working conditions. This is routinely done in the plant; and whenever evidence is uncovered of possible low level exposures, immediate corrective steps are taken to avoid repeated exposure such as the prescription of protective equipment, cleanup of contamination, and control of individual work assignment. As previously stated, exposure for a limited time to low level radioactivity is not considered harmful; however, it is our practice to prevent any exposure of individuals to even "tolerable" levels of radiation within practical limitations.

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Is it possible for a person to develop cancer or other ills from one large exposure to radioactive materials handled here?

Answer

It does not appear probable that cancer would result from one large exposure to uranium materials handled here. As previously stated, there is no clinical

evidence to this effect. In major exposures to process materials, the heavy metal poisoning due to uranium and the toxic effects of the fluorine component may cause injury to the individual on one large exposure. Such effects normally are immediately evident to the examining physician and may be considered comparable to those of many toxic or poisonous materials processed or handled in industry today. Experience at this plant has not revealed any illness which has developed from the radioactive properties of uranium as the result of one major exposure or cumulative exposures, although several injuries due to the chemical toxicity of the material have occurred. None of these injuries were disabling.

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If the answer to Question 5 is yes, how great an exposure would be required and how long would be necessary to definitely determine whether harmful after-effects were going to result?

Answer

Although the answer to Question 5 is no, in project cases (Manhattan District--now A.E.C.) where definite injury has resulted to individuals on one major exposure due to the heavy uranium poisoning and toxic effects of fluorides, the individuals involved were inadvertently exposed to a very smoky atmosphere for several minutes without respiratory equipment. The effects of such exposures are immediately obvious to the medical staff.

Question No. 7

If an employee is definitely exposed and is immediately sent to the Dispensary for examination and the results are negative, does this mean that the employee will never develop an illness as a result of this exposure?

Answer

It is the opinion of radio-biologists and medical authorities that following any single exposure, regardless of magnitude, wherein the clinical, laboratory and environmental findings are negative, there will be no resultant illness to the individual concerned.

Question No. 8

If a person should develop cancer or other illnesses, is it possible to determine whether the illness results from exposure to radioactive material?

Answer

In most cases it is not possible to refer a cancerous condition, as well as many other types of illnesses, to specific causative factors; however, the absence of certain factors such as radioactive materials in the vital organs can definitely eliminate association with radiation exposure as the causative factor. Example: autopsy or exploratory surgery results will positively reveal existent radioactive material in any body tissue.

Question No. 9

When can the Medical Department determine with certainty that no harm has been done to an employee who was exposed during 1944 or prior to the existing radiation detection and decontamination program?

Answer

To the best of our knowledge no cases of radiation injury exist. During the period of time in question, the alpha activity of the uranium processed in the plant was much lower than at present. Thus, the radiation hazard from ingested uranium compounds at that time was for all practical purposes no more serious than the chemical toxicity hazard. Any acute conditions resulting from exposure during the period in question would have been detected by this time. Further for the period of time involved, during which the individual may have been exposed to low level or sub-acute conditions, there is no clinical evidence and little likelihood that injury has occurred. On the other hand, it is again emphasized that this plant is now being viewed as a long-range operation; thus it is becoming increasingly important that sufficiently low radioactivity levels be maintained in the plant so that cumulative chronic conditions will not occur over a long period of time, even a complete life span. Proper work techniques and protective devices are available so that every job in the plant involving radioactive materials can be performed in a safe manner. As improved methods of hazard detection, improved protective equipment, as well as improved medical diagnostic techniques have been developed, they are applied to reduce occupational hazards to well below established "tolerable" conditions. This is in line with our practice of continually reducing all occupational hazards to a minimum.

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Are we certain that respiratory protective equipment provided precludes inhalation of radioactive materials?

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What are the effects of leaving the plant premises with contamination on hands and clothing (with regard to our families)?

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As stated before in this memorandum, it is necessary to get the contamination inside the body before there can be any effect. As pointed out previously, minute exposure to radioactive materials, as would be the case in these instances, would not have any adverse effect if not routinely repeated. It is plant practice to minimize contamination of personnel and their clothing and also to routinely monitor personnel for contamination and reduce such accidental exposures to a minimum.

It is plant practice to prevent employees from leaving the plant with potentially injurious quantities of contamination on the clothing and body. Active participation by the individual must be depended upon to supplement plant controls, which include personal hygiene regulations and prescribed personnel monitoring.

The Central Safety and Health Committee recognizes that the foregoing discussions of the employees' questions are not yes or no answers, as may have been requested; however, direct presentation of this basic information should allay certain misgivings which have apparently entered the minds of some of our employees. By means of a memorandum such as this, additional information for supervisory guidance will be made available to plant supervisors as the need arises and information becomes available.

Considerable money is being spent and a large scale research program is in progress in the field of radio-biology, and it is recognized that at the time we do not have all the information to give more complete answers to the above questions. However, considering the nature of the material and the protective program in force, experts are of the opinion that the radiation hazard due to association with the processing of uranium compounds in this plant is no greater than the everyday risks in most other chemicals industries and probably no greater than the risks accepted during normal everyday life.

12-24-49 (10)

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 PLANT
OAK RIDGE, TENNESSEE

CENTRAL SAFETY COMMITTEE MEETING MINUTES
January 25, 1949

ATTENDANCE:

Carbide and Carbon Chemicals Corporation Operating
Contractor for the U.S. Atomic Energy Commission.

Present:	Mr. W. B. Humes	Dr. F. W. Hurd
	Mr. C. A. Babcock	Dr. J. S. Lyon
	Dr. C. K. Beck	Mr. J. J. McCarthy
	Mr. S. Cromer	Mr. F. R. McQuilkin
	Mr. A. P. Dunlap	Mr. J. P. Murray
	Mr. A. A. Forseman	Mr. W. L. Richardson
	Mr. J. J. Fritz	Mr. D. H. Riley, Jr.
	Mr. C. L. Gritzner	Mr. B. Speyers
	Mr. H. R. House	Mr. R. R. Wolf
	Mr. A. P. Huber	

Absent: Mr. R. M. Batch Mr. J. A. Elkins

The meeting was called to order by W. B. Humes, Plant Superintendent, at 10:05 a.m. There were no comments on the minutes of the December meeting.

OLD BUSINESS

None.

NEW BUSINESS

Functions of Central Safety Committee--Mr. Humes announced that the scope of the Central Safety Committee's activities would be expanded to include radiation hazards and industrial health so as to include all aspects of the plant safety program. There will be a permanent subcommittee to deal with special hazards involving critical mass.

Plant Accident Experience--Mr. Humes reviewed the frequency and severity rates for 1948 as compared to 1947, and he feels that although we got off to a bad start in 1948 that the rates for the year were not bad. He complimented the Laboratory, Industrial Relations, and Electrical Maintenance Divisions for having bettered their best previous records in days worked without a disabling injury. Mr. Dunlap reviewed the overall safety record, pointing out the following:

1. Five divisions improved their frequencies over 1947.
2. Three divisions exceeded their best previous man-days records.
3. The plant had a frequency rate of 1.0 for the past two months.
4. The number of minor injuries per month has been lowered.
5. Two hundred and seventeen employees have been sent to the Dispensary in conjunction with 90 reported material releases.
6. Vehicle accidents show a downward trend.
7. Fire loss ratio is much less than that normally experienced by insurance companies handling preferred risks.

Mr. Dunlap pointed out that the general safety program for the plant appears to be achieving good results, and the existent written program put out some years back by Industrial Relations is now to be rewritten and brought up to date.

Central Safety Committee Meeting Date--It was suggested that the Central Safety meeting date be changed to an earlier date in the month. Mr. Dunlap is to arrange for this.

Accidents Involving Radioactive Materials and Radiation Exposures--Items 1, 2, 3, and 4, in a proposal, dated December 28, 1948, on this subject and sent to the Committee members for action at this meeting, were approved. These read as follows:

"1. Overexposure Indicated by Film Badge and Pocket Chamber Monitoring

"Film badges and pocket chambers are in use to monitor personnel for penetrating radiation. While the pocket chambers, which can measure a maximum of 200 mrep, are read daily, the film badges normally remain in service for one week before processing. In the event of a significant pocket chamber reading of 100 mrep or greater, the procedure is to process the film badge immediately. The lower reading obtained on a pair of pocket chambers is considered significant.

"Line organization is responsible for interpreting pocket chamber readings, for notifying the Radiation Hazards Department of each indication of overtolerance (above 100 mrep per day), and for turning over to this department immediately the film badge worn by the individual concerned. Arrangements have been made whereby X-10, which performs the service for us of processing film badges, will notify the Radiation Hazards Department by telephone of any indicated overtolerance (for film badges covering a regular one-week period--500 mrep; for film badges processed in conjunction with overtolerance indication by pocket chambers--100 mrep). This department will immediately notify by phone the division superintendent concerned, the Medical Department and the Safety Department. The usual procedure of investigating accidents will be followed, and an appropriate report which includes findings and recommendations for preventing recurrence is to be issued to interested persons. The Safety Department and the Radiation Hazards Department will jointly participate in investigations of this type.

"2. Overtolerance Hand Counts

"Instances wherein hand counts are above tolerance (over 100 c/min.) and decontamination cannot be effected by normal washup procedure are to be referred to the Dispensary. The Medical Department will advise the Safety Department as soon as possible, as in cases of occupational injury. This type incident is to be investigated in the same manner as an indicated overexposure by film badge monitoring insofar as determination of cause and recommendations for corrective action are concerned.

"Note: Any contamination of other surfaces of the body are to be handled in the same manner as an overtolerance hand count. (Contamination tolerance level for body--250 c/min.)"

Sample posters to stimulate use of hand and foot counters when available were displayed, and some safety publicity along these lines will be issued at the appropriate time in the plant.

"3. Contaminated Personal Clothing

"In instances where an employee's personal clothing is contaminated to an above tolerance degree (over 500 c/min.), appropriate steps should be taken by the employee's immediate supervisor to prevent the employee's leaving the plant in this condition. Issue of coveralls, shoes, or other necessary personal effects that are available will be allowed. Each free issue of replacement clothing or shoes is to be approved only by individuals authorized by the Plant Superintendent. Costs involved are to be charged to departmental expense (N) in accordance with the employee's pay roll identity. The immediate supervisor should investigate instances of this kind and determine the cause and corrective action necessary to prevent recurrence. Each division is requested to advise the Radiation Hazards Department of instances in this category so that lessons learned may be applied on a plant-wide basis. It appears desirable to establish a general policy regarding conditions under which an employee's clothing will be replaced or laundered (including decontamination) at no cost to the employee."

With further reference to the last sentence concerning replacement by the Company of employees' personal clothing which becomes contaminated, it was decided that the present practice would be continued of furnishing the employee something suitable to wear home, pending receipt of an approved policy to replace or reclaim damaged personal items.

"4. Injuries Involving Radioactive Materials

"It is the responsibility of supervision concerned to see that the Medical Department is immediately informed of the radioactive contamination hazard involved in any of the following significant conditions:

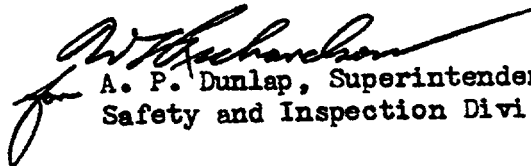
- "a. Possible contamination of open wounds at the time of original injury or subsequent thereto.
- "b. Possible contamination of injured person's clothing or body.
- "c. Possible ingestion or inhalation of radioactive materials."

Central Safety Committee Meeting Minutes
January 25, 1949
Page Four

Identification of Radiation Hazards--A proposed standard practice procedure was reviewed, and after discussion, Mr. Humes appointed Mr. Dunlap to go over details of the proposal with a subcommittee to be appointed later.

Emergency Passes--Mr. McCarthy reviewed the status of emergency passes, and it was agreed that it would be desirable to do away with the pocket passes and include all necessary emergency codes on the employees' badges. It was felt that the red bar previously used for plant fire brigades was not needed by the fire brigades and instead would be issued to the plant emergency squads who ultimately will respond to all emergencies in the plant, and possibly others having duties requiring presence at various emergencies. An "E" symbol will be affixed to badges of supervisory personnel requiring same. Details of carrying out this change are to be handled subsequently by Messrs. McCarthy and Dunlap and included in the Plant Emergency Procedure.

The meeting adjourned at 11:15 a.m.


A. P. Dunlap, Superintendent
Safety and Inspection Division

WLR:ec

cc: Mr. C. E. Center
Mr. S. R. Sapirie (2)

CHT

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 Plant
Oak Ridge, Tennessee

CENTRAL SAFETY COMMITTEE MEETING MINUTES
December 21, 1948

Attendance

Present:	Mr. W. B. Humes	Mr. O. W. Bernheim
	Mr. C. A. Babcock	Mr. G. S. Hensley
	Mr. R. L. Batch	Mr. J. A. McKenna
	Dr. C. K. Beek	Mr. J. P. Murray
	Mr. E. C. Bollinger	Mr. K. C. McGregor
	Mr. A. P. Dunlap	Mr. R. R. Wolf
	Mr. J. A. Elkins	Mr. B. Speyers
	Dr. G. A. Garrett	Mr. W. L. Richardson
	Dr. F. W. Hurd	✓ Mr. A. F. Becher
	Mr. H. R. House	
Absent:	Mr. A. P. Huber	Dr. J. S. Lyon
	Mr. S. Cromor	Mr. J. J. McCarthy
	Mr. J. J. Fritz	Mr. D. H. Riley, Jr.

Carbide and Carbon Chemicals Corporation Operating
Contractor for the U.S. Atomic Energy Commission.

The meeting was called to order by Mr. W. B. Humes, Plant Superintendent, at 10:05 a.m. The minutes of the November meeting were accepted without comment.

OLD BUSINESS

None.

NEW BUSINESS

Plant Accident Experience (November)—Mr. Humes commented on the continuing improvement in Plant Accident Experience record and pointed out that the downward trend in frequency of all accidents noted during the past five months was beginning to pay off as evidenced by the frequency rate of 1.30 for November. The cumulative frequency rate compares favorably with 1947, and a marked reduction is noted in the severity of accidents occurring during 1948. He announced that the date of the last disabling injury was November 1, and that if we continued until December 30 without a disabling injury we will again have exceeded 1,500,000 man-hours.

Mr. Dunlap commented on the record established by the various divisions, pointing out the fact that Plant Engineering Division, Industrial Relations Division, Electrical Maintenance Division, and the Superintendents' Group had exceeded their best previous records, and many of the other divisions were rapidly approaching this point. He emphasized that the General Maintenance Division was to be complimented on the marked improvement shown in that they had experienced only two disabling injuries within the past five months. He stated further that some improvement was noted in the motor vehicle accident experience; however, supervision should continue to emphasize this phase of the program and develop greater respect of employees for Company equipment.

In reviewing the analysis of minor injuries experienced during the month of November, it was pointed out that hand and finger injuries continue to predominate; and the Central Safety Group was urged to emphasize the importance of reducing these types of injuries, particularly where the handling of contaminated materials is involved when minor scratches and abrasions may become of major significance due to contaminants present.

Mr. Speyers was asked to report on the improved record established by the Maintenance Division and point out what he considered pertinent factors. He reported that Maintenance supervision had become aware of the need for checking absence of employees to assure that they are not because of job connected injuries and illnesses, and that prompt investigation has resulted in a marked reduction in cases which, if they were allowed to go uninvestigated, may have resulted in loss of time. He pointed out that there appeared to be a hesitance on the part of Oak Ridge physicians to return employees to work even though a regularly established plant job was available to them which they could safely perform.

Safety Committees—Mr. Dunlap reported that increased emphasis during 1949 would be placed on refinement of the safety committee organization presently in effect in the plant. He stated that the Safety Department is attempting to evaluate the present organization and had prepared charts to reflect the safety committee structure presently set up for K-25, and from the facts given to date they felt that it would be advisable for the Central Safety Committee to re-establish the policy to be followed on the type of organization and frequency of meetings. The Safety Department gave a brief review of the charts under study pointing out inconsistencies and improvements that might be made. The charts are being used by them in evaluating the plant program; and upon receipt of a policy decision in this matter, they will arrange to contact the division superintendent concerned and make pertinent recommendations where indicated.

Considerable discussion developed relative to the functioning of safety committees in the plant, and it was the consensus of the group that line organization committees were the best means for perpetuating the Plant Accident Prevention Program. In summarizing the decisions of the group, Mr. Rones emphasized the following points:

1. Decisions made by the Central Safety Committee should be passed down to the first line supervisor and that this is best accomplished through line organization.
2. Little or no information and suggestions are being passed up by lower level committees which may have plant-wide or intra-divisional application. Where such items were of sufficient importance, they should be passed up immediately.
3. Chairmen of safety committees are required to attend an additional meeting of a higher level to accomplish Items 1 and 2 above.
4. The frequency of holding meetings should be in conformance with the following:

Central Safety Committee Meeting Minutes
Page Three
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- a. Central Safety and divisional meetings to be held on a monthly schedule.
- b. Supervisory and employee meetings to be scheduled to fit the work schedule of the division concerned.

Mr. Dunes pointed out that this should generally be on a monthly basis, and deviations therefrom would be the exception rather than the rule.

Agenda for Central Safety Meetings--The Safety Department was requested to prepare in advance a detailed agenda for each Central Safety Meeting and distribute to the members to promote a better handling of individual problems.

Form WCA-1235, "Safety and Inspection Memo"--Mr. Dunlap distributed copies of Form WCA-1235, "Safety and Inspection Memo," stating that its use would be adopted by the Safety and Inspection Division as a simple means of making recommendations to plant supervision although not all recommendations will be made on this form. Supervisors are requested to return one copy of the form, noting approval or rejection of the recommendation, to the address as noted on the form.

The meeting adjourned at 11:15 a.m.



A. P. Dunlap, Superintendent
Safety and Inspection Division

AFB:mch

cc: Mr. C. E. Center
Mr. S. R. Sapirio (2)

AFB *am*

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 PLANT
OAK RIDGE, TENNESSEE

CENTRAL SAFETY COMMITTEE MEETING MINUTES
November 23, 1948

Carbide and Carbon Chemicals Corporation Operating
Contractor for the U.S. Atomic Energy Commission.

Attendance

Present: Mr. W. B. Humes
Mr. A. P. Huber
Mr. C. A. Babcock
Mr. R. M. Batch
Dr. C. K. Beck
Mr. E. C. Hollinger
Mr. S. Cromer
Mr. A. P. Dunlap
Mr. H. R. House

Dr. F. W. Hurd
Dr. J. S. Lyon
Mr. J. J. McCarthy
Mr. J. P. Murray
Mr. D. H. Rader
Mr. W. L. Richardson
Mr. B. Speyers
Mr. R. R. Wolf

Absent: Mr. J. A. Ellkins
Mr. J. J. Fritz

Mr. D. H. Riley, Jr.

The meeting was called to order by W. B. Humes, Plant Superintendent, at 10:05 a.m. The minutes of the October meeting were accepted without comment.

OLD BUSINESS

✓ Safety Awards--All awards have now been distributed and this item is considered complete. From all indications, the employee reactions were very good.

Powder Actuated Stud Drivers--Two Mine Safety Appliance type guns are to be purchased for use by selected personnel in Mr. Winkel's and Mr. Doherty's sections, General Maintenance Division. Mr. Speyers reported that each use of the tools would require a separate O.K. from him, and it is planned to use them only on jobs involving several fastenings and not where only a few are involved.

Assignment of Responsibility for Injuries (UCC Cause Classification Code)--In last month's meeting wherein this matter was discussed, members were requested to bring any comments or objections to this meeting. After a resume of the matter by the Safety Department, there were no objections stated and it was agreed by the Committee that the Code should be used by all supervisors in preparation of all injury reports.

Emergency Plan--Dr. Hurd asked to discuss the relation between emergency plans mentioned in the last Central Safety Meeting and a problem in Building K-1004-J. The Safety Department explained that the emergency plan mentioned in the last meeting referred to the plant as a whole and not to specific procedures required in an individual operating unit. It was pointed out by the committee that handling of emergencies within an individual unit should be worked out by the operating head (i.e., not the Safety Department), and that since the present plant emergency procedure plus those in effect in the different divisions appear to be working satisfactorily, this method should be continued by all operating heads.

NEW BUSINESS

Plant Accident Experience, October--In reviewing the over-all plant experience on minor injuries, Mr. James pointed out that if the decrease in October could be continued and lowered further next month that it should result in lowering the plant frequency rate because of the relationship between major and minor injuries.

The Plant Engineering, Industrial Relations and Electrical Maintenance Divisions were complimented for having bettered their best previous records and for continuing to work without a major injury. All of these divisions have exceeded one year without a lost time accident, and Plant Engineering has exceeded two years.

The Safety Department reviewed Major Injury Number 42 involving a finger injury to an Instrument Mechanic who got his hand caught in a "V" belt drive on a vacuum pump. As a result of this accident, the following was decided:

1. All belt drives in the plant should be guarded.
2. Mr. Batch was requested to have the Engineering Division design a standard guard which could be used interchangeably on all of the vacuum pumps. Special guards for other belt drives are to be handled by the Engineering Division in the usual manner when requested by an operating head.
3. Users of vacuum pumps and other belt driven equipment not suitably guarded are responsible for seeing that they are equipped with a guard per Item 2 above. Those guards may be installed by the user's writing a separate work order and/or at the time the pumps are serviced at the Vacuum Pump Shop. Mr. Speyers is to see that the Vacuum Pump Shop is instructed to handle this item on pumps received without guards.


In connection with a discussion of Major Injury Number 39, it was apparent that supervision needs to pay more attention to medical restrictions. Mr. James requested committee members to have all department heads call the Medical Department and talk with the doctor concerning restrictions on their employees to make sure that they understand the intent of the restrictions thoroughly. Following this the department head should talk with the employee and his supervisor so that there will be no misunderstanding of what the employee should or should not do. Mr. Bollinger reviewed the procedure followed in the Power Division which consists of discussing the case with the doctor then writing a letter to the employee advising him of the restriction and what he is or is not to do. Not only is the supervisor of the employee responsible for seeing that the restriction is followed on work assignments, but the employee likewise is responsible; also, if he is assigned to another supervisor he is expected to acquaint him with the nature of the restriction.

Ambulance Service--The Safety Department mentioned that some complaints have been received from plant first aiders on the handling of injured employees by the ambulance drivers. At the present time, there is a designated driver for the ambulance on each shift from Monday through Friday, but on week-ends the ambulance is manned by other firemen. Mr. McCarthy stated that he was aware of the complaints and had discussed them with Messrs. Flack and Wolf and that if possible the ambulance drivers will be coached in better methods of handling patients. Mr. McCarthy explained that all of the firemen had had first aid training and in his opinion are qualified to handle this detail satisfactorily.

Also discussed was whether or not the plant needs a new ambulance. Messrs. Huber, Wolf, and McCarthy were requested to study this matter further and present their recommendations at a later date.

Company-Union Safety Meeting--Mr. Dunlap discussed the Company-Union Safety Meeting held Monday, November 22. One of the items brought up by the Union concerned the assignment of men to jobs where they are required to work alone. It was agreed that this should not be done if the work is hazardous or in a hazardous location. Such items as entering manholes, tanks, working around moving machinery, etc., are examples of this. On the other hand, if there is other personnel working in the vicinity who could hear a cry for help or otherwise render assistance immediately, it would not be necessary to assign two people to the work. It is not the Company's intention to automatically send two people on all jobs.

The meeting adjourned at 11:00 a.m.


A. P. Dunlap, Superintendent
Safety and Inspection Division

WLR:ec

cc: Mr. C. E. Center
Mr. J. C. Robinson

22

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 Plant
Oak Ridge, Tennessee

November 2, 1948

CENTRAL SAFETY COMMITTEE MEETING MINUTES

Attendance: Mr. W. B. Humes
Mr. A. P. Huber
Mr. R. H. Batch
Mr. S. Croner
Mr. J. A. Elkins
Mr. J. J. Fritz
Mr. A. A. Foreman
Dr. F. W. Hurd

Mr. H. R. House
Mr. J. J. McCarthy
Mr. J. P. Murray
Mr. W. L. Richardson
Mr. D. H. Riley, Jr.
Mr. B. Speyers
Mr. R. R. Wolf
Mr. A. F. Becher

Absentees: Mr. C. A. Babcock (Vacation)
Dr. C. K. Beck

Mr. A. P. Dunlap
Dr. J. S. Lyon (Vacation)

The meeting was called to order by Mr. W. B. Humes, Plant Superintendent, at 10:10 a.m. There were no comments on the minutes of the previous meeting, and they were accepted as written.

OLD BUSINESS

Safety Awards--It was reported that the pens and lighters were being distributed. The billfolds were received, but some substitutes made by the vendor were not acceptable, and he has agreed to straighten this out. This will delay distribution of the billfold awards for another week or so.

Emergency Plan--It was reported that an emergency plan for this plant had been submitted to the Atomic Energy Commission along the lines suggested by them and agreed to by the three plant representatives. No further action is necessary for the present. Later, however, individual plans along the lines of the over-all plans will be required of each operating and service group affected, and the cooperation of all division heads will be appreciated. Each will be contacted by the Safety Group in this regard.

Fire Prevention Week--Mr. Speyers reported that from all indications this year's program was outstanding in the cooperation received from all plant supervision and employees. He indicated that this was in a measure due to the detailed planning that went into the program on the part of the Fire Department and the Safety and Inspection Division. Preparation of the final report is well underway and should reflect much credit on the plant.

Powder Actuated Stud Driver--A unit has been borrowed from the Mine Safety Appliance Company, and arrangements have been made with the General Maintenance Division for tests as previously recommended.

NEW BUSINESS

Injury Analysis and Record, September--Mr. Speyers reviewed a recent accident involving a side boom caterpillar which failed to clear an overhead wire crossing burning down a 15,800 volt primary feeder. The cause of the accident, according to Mr. Speyers, was the failure of personnel to observe the instructions given for moving equipment of this nature over the road and that the previously issued instructions have been re-issued and re-emphasized to all employees of the General Maintenance Division. In addition, all supervisors were requested to emphasize in their safety meetings job instructions covering the moving of this type equipment.

The Safety Department reviewed the September record of accidents involving Company-operated motor vehicles and pointed out that many were due to lack of care on the part of the employee or disregard for Company equipment. It was further observed that many of these accidents are allowed to go unreported and that those responsible for the accident or the cause thereof could not be determined. Mr. Speyers was asked to review a recently established procedure at the Garage in which the operators of motor vehicles are expected to indicate on a defect card (to be found in the glove compartment of all vehicles) what defects or repairs are necessary in their opinion. This is to be filled out when the vehicle is brought to the Garage for servicing, and he requested cooperation of all divisions in carrying out this measure.

Mr. Himes then pointed out that further improvement in the plant performance both from a production as well as a safety standpoint would require supervision to seek out the minor failures that were continually occurring. In other words, the careless employee who from time to time jams up a fender will be the same one who sooner or later will cause a more serious accident. He referred to our plant experience during the past year where a direct relationship between major and minor accidents can be determined by a statistical analysis of plant accidents and further emphasized that "elimination of the causative factors of minor accidents will automatically take care of the more severe cases."

Assignment of Responsibility for Injuries (UCC Cause Classification Code)--Mr. Wolf questioned whether or not all divisions were using this Code and referred to the statement identified with an asterisk in the Monthly Injury Analysis and Record Report (see page ten, September report). He was interested in determining if this implied that all supervisors were not cooperating in assigning causes for plant accidents. The Safety Department explained that use of this Code had been introduced in the plant last winter following receipt of the UCC Industrial Injury Code (copies of which had been sent to the superintendents by Mr. Center on August 12, 1947). There are a few departments in the plant which do not require use of the Code by their foremen when making minor injury reports, apparently feeling that the Code should be approved by the Central Safety Committee prior to its use in their departments. Mr. Himes requested each division to review the Code, and that any objections to extending its use to all plant divisions be brought to the attention of this committee at the next meeting.

Spills of Radioactive Materials--Dr. F. W. Hurd suggested that plant procedures prepared for the handling of spills of radioactive materials should include solutions as well as other spills heretofore defined. He pointed out that it was in order that adequate procedures be prepared to define the responsibility of each using department in connection with cleaning up spills of this nature. It was agreed that the Radiation Hazards Department should follow up this work in the field to assure that adequate instructions are available to supervision outlining the procedure to be followed in handling the spills of radioactive materials. While the plant philosophy was that the operator of each facility is responsible for handling such incidents within his own facilities, it is necessary at times to call on certain specialists when exposure to penetrating radiation might be present.

The Safety Department reported that there is a possibility that maintenance forces may be unknowingly exposed when engaged in removal of earth at hot storage yards and other areas where earth contamination may result from drainage. It was agreed that the Radiation Hazards Department should be responsible for monitoring such suspect areas and should advise responsible operators when such contamination exists so that proper warning signs, barricades, etc., can be provided.

First Aid Pamphlets--Mr. Wolf displayed a first aid pamphlet which is available from the Metropolitan Life Insurance Company at no cost and which can be distributed to plant employees. The Medical and Safety Groups have reviewed the contents and there are no apparent conflicts with the plant first aid training program. It was agreed that the pamphlets should be distributed to the homes as an "off the job" safety activity.

First Aid Training--Mr. Wolf indicated that it would be desirable to have the Training Department certify representatives of the various divisions as first aid instructors to carry out the first aid training program for the plant. This was generally agreed to by the Committee, but the General Maintenance Division wished to discuss the matter further within its group. Some of the committee members felt that it would be desirable to have a separate account for time spent in this work so that it would not be confused with "T" time, but no decisions or solutions were offered and the matter was not pursued further.

Safety Glasses--Mr. Riley reviewed a recent accident involving a Power Division employee who received an abrasion to the eye from a fragment of glass which chipped from the lens of a pair of safety spectacles when struck from the rear by a slice bar. He requested the Safety Department's opinion to whether or not this was because of a defect or poor quality of the glass. It was pointed out that safety glasses are not a laminated type of glass as is generally believed but are lenses which have been hardened by a heat treat process similar to that used for steel and that laminated types of glass cannot be employed, as no means has been found to make them optically perfect; although hardened glass does provide protection against impact, it is not normally expected to resist a blow of this nature without breakage. It was pointed out that safety glasses with scratched lenses do not have the same strength as when unmarred, and if employees are observed wearing scratched glasses, they should be requested to have them changed.


Central Safety Committee Meeting Minutes
Page Four
November 2, 1948

Review of National Safety Congress--The Safety Department reported on the proceedings of the National Safety Congress and also of the conferences as scheduled by UCC and AEC at the Argonne National Laboratory, Chicago, Illinois, during the week of October 18-22, 1948.

The conferences held by the Chemicals Section of UCC highlighted the various types of safety programs in effect at other plants. Mr. Richardson commented that it is apparent that the other units of the Corporation agree that fundamentally an accident prevention program should be based on the philosophy that safety is a responsibility of each plant employee to the same extent as he is responsible for his assigned duties; however, considerable difficulty was experienced at other units of the Corporation in accepting this purpose as a definite assignment of responsibility to the line supervision for administration of the Accident Prevention Program had not been made. He said that the K-25 Plant could review the progress made to date with pride as the major steps in accomplishing these purposes at our plant were already accomplished facts. This was further emphasized by Mr. Riley who stated: "other delegates from line supervision at the other plants gave their wholehearted approval to our program which provided acceptance of responsibility for the Plant Safety Program by supervision." A brief review of the AEC conference high lighted a discussion of disaster plans for the general areas within the Commission and the relationship between Health Physics and Safety Groups within the various operating units.

Paramount interests from the National Safety Congress included a review of exhibitions and the proceedings of the Chemical Section.

The meeting adjourned at 11:10 a.m.


A. P. Dunlap, Superintendent
Safety and Inspection Division

WLR:ee

cc: Mr. C. E. Center
Mr. J. C. Robinson (2)

Lecher

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 PLANT
OAK RIDGE, TENNESSEE

CENTRAL SAFETY COMMITTEE MEETING MINUTES
September 30, 1948

Attendance: Mr. W. B. Humes Mr. H. R. House
Mr. A. P. Huber Dr. F. W. Hurd
Mr. R. M. Batch Mr. J. J. McCarthy
Mr. C. A. Babcock Mr. J. P. Murray
Mr. S. Cromer Mr. W. L. Richardson
Mr. A. P. Dunlap Mr. D. H. Riley, Jr.
Mr. J. A. Elkins Mr. B. Speyers
Mr. J. J. Fritz Mr. R. R. Wolf
Mr. G. S. Hensley Mr. A. F. Becher

Absent: Dr. C. K. Beck (Vacation)

The meeting was called to order at 10:05 a.m. by Mr. W. B. Humes, Plant Superintendent, and the minutes for the August meeting were reviewed and approved.

OLD BUSINESS

Safety Awards--The Safety Department reported that the following orders had been placed on September 15 and delivery expected within two weeks; however, later advice from the Purchasing Department indicates that delivery will be made by October 15, 1948:

1583 Color King Pens (S. Buchsbaum Company, Chicago, Illinois)
1733 Billfolds (S. Buchsbaum Company, Chicago, Illinois)
1280 Zippo Lighters (Zippo Manufacturing Company, Bradford, Pa.)

Rescue Squad Training--The status of this program was reviewed by the Safety Department, and it was reported that all squads had completed the following:

- a. First Aid Review, transportation of injured and artificial respiration.
- b. Mask training, use of Chemox, All Service and U. S. Assault Masks, in simulated field conditions.
- c. Fundamentals of fire fighting apparatus, hose and ladder evolutions and use of salvage covers.

The remainder of the year 1948 will be devoted to classroom discussion of special hazards. This will include a general review of toxic and radioactive materials and flammable liquids used at the plant. Squad members will be made familiar with the use of various types of detection instruments, the location of hazardous materials and the proper method of handling in case of emergency. Field practice sessions will be put into effect during January 1949 to provide simulated field conditions of emergency wherein the squads will respond to practice rescue tactics, etc. It is expected that initial training and certification of the squads will have been completed by March 1949.

Central Safety Committee Meeting Minutes
Page Two
September 30, 1948

NEW BUSINESS

Device for Removing Mercury Vapor from Vacuum Cleaner Exhaust--Laboratory Report No. K-272 was reviewed by the committee. It was recommended that a sufficient number of vacuum cleaners be equipped with this type filter for plant use. The Safety Department will follow this and recommend use at locations where mercury is handled.

Injury Analysis and Record--The General Maintenance Division, which until recently had experienced the greatest number of injuries in the plant, has now improved this performance and exceeded its best previous record of forty-one days. As of September 30, it has completed eighty-three days of operation without experiencing a major injury. Other divisions which have bettered their best previous record and are continuing to operate without experiencing major injuries are: Industrial Relations, 632 days, Plant Engineering, 783 days, Electrical Maintenance, 332 days, and Superintendents, 244 days.

Mr. Dunlap reviewed the relationship of major to minor injuries and directed the attention of the committee to the continued trend of causative factors of minor injuries contained on Page 4 of the August report.

Make-up Pay Policy--Mr. Humes reviewed a recent case where he had settled the question of make-up pay in favor of the employee because the supervisor, although aware of the accident, failed to refer the employee to the dispensary for treatment at the time of the accident. He emphasized the importance of each supervisor's questioning an employee following an accident (when an injury may not be immediately apparent) as to whether the employee was hurt and to assure himself in all doubtful cases by referring the employee to the dispensary.

Foreman Accident or Injury Reports, When Required; and Employee Statements to Medical Attendants--A discussion of this subject centered around the advisability of direct questioning of employees by Medical attendants when the cause of an injury is unknown to the employee or seemingly not job connected. Mr. Riley felt that many minor irritations, not necessarily job connected, etc., were blamed on fly ash at the Power House simply because the employees may have been present in areas where fly ash might be encountered. Mr. Humes suggested that Dr. Lyon attend future meetings of the Central Safety Committee as a regular member so that the Superintendent can better appreciate the problems of the Medical Department. It was also suggested that early discussions between the foreman or supervisor and the physician would help the Medical Department in its diagnosis. In addition, the subcommittee handling the proposed accident reporting procedure was requested to submit its final recommendations at the next meeting.

Powder Activated Stud Drivers--Mr. Speyers reviewed the plant experience involving the use of the Tempotool. He pointed out that accidents resulting from the use of the tool seemingly balanced the time savings involved in its use. He further stated that use of the tool had recently been limited to only those persons who were properly trained and that in cooperation with the Safety

Central Safety Committee Meeting Minutes
Page Three
September 30, 1948

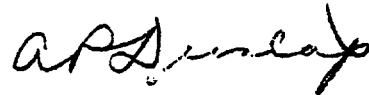
Department, comparative tests were made of the Tempotool and a similar tool manufactured by the M. S. A. Company, which apparently provided greater safety factors. It was the consensus that the use of such equipment be limited to personnel in the General Maintenance Division and then only with the approval of the Division Superintendent for each specific job. Mr. Humes recommended that one of the M. S. A. tools and a supply of ammunition be procured and subjected to detailed tests and study by Messrs. Speyers, Batch and Dunlap.

Major Injury (August)--Mr. Huber reviewed the accident involving a Utilities supervisor who was critically injured when he stepped through a grating opening at the Sanitary Water Plant and fell eighteen feet to the basement floor. It was recognized that due to the unusual circumstances surrounding the accident little, if any, constructive recommendations could be offered to prevent recurrence.

Fire Prevention Week--Mr. Speyers reported on the plans proposed by the Fire Prevention Week Committee. He stated that all subcommittees had been appointed and were functioning to carry out their respective responsibilities. He forecast a successful program based on the interest shown to date. Highlights of the program include a self inspection program to cover the plant area, supervisory conferences scheduled at the Fire Hall, a "Man on the Street" radio quiz program using a public address system, and a number of practice drills and demonstrations by the Fire Department.

President's Conference on Accident Prevention Program--Mr. Dunlap gave a brief summary of the conference called by President Truman to evaluate the overall accident prevention experience in the nation. He reviewed the activities of the committee appointed to evaluate cost data associated with industrial accidents. He indicated that consideration was being given to development of such data by large industrial organizations as a means to measure the effectiveness of plant safety programs in place of the frequency and severity rates presently used as a national yardstick.

The meeting adjourned at 11:20 a.m.



A. P. Dunlap, Superintendent
Safety and Inspection Division

WLR:ec

cc: Mr. C. E. Center
Mr. J. C. Robinson (2)

772
CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 Plant
Oak Ridge, Tennessee

CENTRAL SAFETY COMMITTEE MEETING MINUTES

August 24, 1948

Attendance: Mr. W. B. Humes
Mr. A. P. Huber
Mr. C. A. Babcock
Mr. R. M. Batch
Mr. S. Cromer
Mr. J. A. Elkins
Mr. J. J. Fritz
Mr. H. R. House
Dr. P. W. Hurd

Mr. J. J. McCarthy
Mr. J. P. Murray
Mr. D. H. Rader
Mr. W. L. Richardson
Mr. D. H. Riley, Jr.
Mr. B. Speyers
Mr. R. R. Wolf
Mr. A. F. Becher

Absentees: Dr. C. K. Beck

Mr. A. P. Dunlap

The meeting was called to order at 11:05 a.m., by Mr. W. B. Humes, Plant Superintendent, and the minutes for the July meeting reviewed and approved as written.

OLD BUSINESS

The Safety Award Plan, Rescue Squad Training, Plant Air and Water Sampling Program, Accident Reporting Procedure, and Disaster Plan, were not discussed due to the need for emphasis on ways and means to prevent accidents.

NEW BUSINESS

Injury Analysis and Record for July--In reviewing portions of the Injury Analysis and Record for July, Mr. Humes stated: "Approximately 60 per cent of the total disabling injuries incurred during the month are attributed to insufficient supervision or lack of safety morale on the part of the employees." Lack of safety morale on the part of employees is a direct reflection upon the ability of the supervisors to convince the employees of the necessity for working safely and indicates a lack of follow-up by supervision in this regard. Each division superintendent was requested to review the July report and to discuss it thoroughly with divisional supervision to get the facts presented across to each supervisor.

Industrial Relations Division, Plant Engineering Division and Superintendents' Group have bettered their best previous record in days worked without a major injury.

Safety Meetings--A discussion of the best methods for conducting safety meetings was initiated by the Safety Department which pointed out that in some instances safety meetings were allowed to get out of hand by supervision not actively steering the meeting. In some instances, several supervisors have combined their groups under an employee chairman and as many as 50 to 60

Central Safety Committee Meeting Minutes

Page Two

August 24, 1948

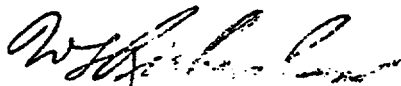
employees attend one meeting. Having as many employees in this one meeting does not allow for frequent participation by each employee and a few employees tend to usurp the entire time. Mr. Huber pointed out that it had been the practice in the past in some few divisions to have hourly personnel chair such meetings in the hope that this would stimulate employee interest in the plant safety program. He was not in agreement with this and felt that a decision should be made by the group as to whether or not this practice should be continued.

Mr. Riley stated that the Power Division favored having the supervisor conduct the meeting and had achieved considerable success in doing so. All of the employees actively participate by reporting on unsafe practices and conditions and by being assigned the task of seeing that the safety suggestions approved by supervision were carried out. Prompt action is also taken on all recommendations and suggestions or reason for noncompliance furnished the employees.

It was the consensus that employees should not chair safety meetings and that supervision, if not already doing so, should commence to actively run the safety meetings--not with a viewpoint of discouraging employee participation but rather to provide for even better participation by requiring employees to serve on safety inspection committees, follow-up work on safety devices, suggestions in job methods, and to allow for active participation by all instead of a few aggressive individuals who try to "hog the show".

Based on observance of unsafe practices in the plant, Mr. Humes emphasized the fact that no supervisor should have any difficulty in finding worth-while matters to discuss in his safety meetings.

Mr. Speyers reviewed the Maintenance Division July accident experience, following which the meeting adjourned at 11:30 a.m.



W. L. Richardson, Assistant Superintendent
Safety and Inspection Division

AFB:mrh

I N T E R - C O M P A N Y C O R R E S P O N D E N C E

(Insert Name) COMPANY Carbide and Carbon Chemicals Corporation LOCATION Post Office Box P Oak Ridge, Tenn.

To Mr. W. B. Humes
K-1001 Building

Date: August 3, 1948

Copy to Central Safety Committee

Subject: Employee Safety Awards

A committee composed of Messrs. G. W. Flack, E. C. Bollinger, K. W. Bahler, R. M. Williams and J. A. Marshall, appointed for the purposes of selecting suitable awards for K-25 Plant employees, held a meeting on July 27th with all members present.

It was agreed that the following items be considered for presentation to employees:

1. Zippo Lighter
2. Pen and Pencil Set
3. Ladies and men's leather wallets -

all of the above items to be provided with suitable embossing or engraving to indicate the nature of the award being made.

A subsequent meeting was held on August 2nd to consider additional items obtained through the New York Sales Office of the Carbide and Carbon Chemicals Corporation. The following changes were suggested:

ADD

1. Elasti-glass wallets - Selection of six types
2. "Silent Partner" plastic poker chip set

DELETE Leather wallets from the original selection

Samples of the type card which will be distributed to all eligible plant employees is attached. Upon approval, formal announcement of the UCC Safety Award Plan and the K-25 Supplement to the plan, will be made in the Carbide Courier. This will be accompanied by pictures of various types of awards which are available. Displays of such awards will be made in the main cafeteria, Process Area, and Power House Area. Where sufficient numbers of samples of the selected items are not available, photographs and descriptive literature will be added.

It is expected that a survey of the Plant can be completed by the week ending August 13th so that a requisition can be initiated for the necessary quantities of items selected, and formal distribution made by September 1st.

APD:AFB:mrh

Attachments:

A. P. Dunlap
A. P. Dunlap, Superintendent
Safety and Inspection Division

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 PLANT
OAK RIDGE, TENNESSEE

CENTRAL SAFETY COMMITTEE MEETING MINUTES

July 20, 1948

Attendance: Mr. W. B. Humes
Mr. A. P. Huber
Mr. C. A. Babcock
Mr. R. M. Batch
Dr. C. K. Beck
Mr. S. Cromer
Mr. A. P. Dunlap
Mr. J. A. Elkins
Mr. H. R. House
Mr. J. J. McCarthy
Dr. F. W. Hurd
Mr. J. P. Murray
Mr. J. B. Scott
Mr. D. H. Riley, Jr.
Mr. J. J. Fritz
Mr. B. Speyers
Mr. R. R. Wolf
Mr. F. R. Dowling (AEC)
Mr. A. F. Becher

Absent: Mr. W. L. Richardson

The meeting was called to order at 10:00 a.m., by Mr. W. B. Humes, Plant Superintendent, and the minutes for the June meeting approved as written.

OLD BUSINESS

Safety Award Plan--The Safety Department reported that certain sample awards had been received and others are expected at the end of the week, at which time they are to be submitted to a subcommittee for selection of those which are to be approved by the superintendents' group. Discussion as to which employees would be eligible for receipt of such awards followed, and it was agreed that only those employees who were on the pay roll for some portion of the period during which the record was established would be eligible.

Rescue Squad Training--Mr. Dunlap reported that two complete shifts have been orientated to date and training is proceeding according to schedule. Training headquarters have been completed and the committee appointed to carry on this phase of the program is proceeding with further plans including field practice sessions for handling special hazards.

Plant Air and Water Sampling Program--Mr. Dunlap reported that the committee had held an initial meeting to discuss the over-all program for air, water and mud sampling for the K-25 Plant, and work was continuing to coordinate all phases of this program.

Accident Reporting Procedure--Messrs. Wolf and Dunlap reported that the committee had met and agreed in general on the proposal as submitted, and it was expected that with certain modifications the procedure would be completed shortly and recommendations of the committee submitted at an early date for approval.

Disaster Plan--Mr. Dunlap reported that the three Carbide operated plants have submitted existing emergency plans for the respective facilities to the Commission. Work is progressing satisfactorily in establishing mutual aid agreements between plants.


NEW BUSINESS

Injury Analysis and Record for June--Mr. Humes reviewed the report for June and commented that while the accident frequency was lower than the preceding six months, the experience for the month of July indicates we are pointing to an all-time high in accident experience for the plant. He cited the fact that four major injuries had already been experienced for the month of July. He then asked Mr. Dunlap to review the accident which had occurred in the Safety and Inspection Division since the Safety and Inspection Divisional record of long standing was broken after 1470 lost time accident-free days.

Mr. Dunlap reviewed the accident involving a member of a test group who incurred chemical burns to the eyes, face and ear when splashed with trichlorethylene, and pointed out that the incident was illustrative of the need for top level supervision to check the operational procedures and job methods which are being followed in the field. He stated in this particular case detailed written instructions had been handed down to supervision as to the correct methods for applying tests and the procedures to be followed by the personnel performing this type work. However, the job in question was in violation of the written instructions and investigation indicated that performance of the job in this manner was not uncommon. He stated that it also indicated a need for closer coordination between the Safety and Inspection Division and the Engineering Division in checking equipment design prior to installation in the field. At this point, Mr. Humes requested that Mr. Batch review the necessity for continuing to use trichlorethylene as a test medium throughout the plant, and to limit its use where possible.

Mr. Humes directed the attention of the group to page four of the Injury Analysis and Record Report for June, and pointed out the continuing record of a high percentage of accidents due to lack of safety morale. He stated that it was the responsibility of the superintendents' group to indicate its interest in eliminating unsafe practices by actively participating in this phase of the program. He cited a case where unsafe practices were noted on a job with supervision in attendance, yet no attempt was made to correct the employees concerned at this time. He said that we have failed to convince the employee of the need for compliance with safe practices and that each member of the committee should start the ball rolling in his division by emphasizing the need for follow-up by supervision in determining that unsafe practices and conditions are eliminated, and that where unsafe practices are noted that immediate action should be taken to stop them.

The meeting was adjourned by Mr. Humes at 10:30 a.m.


A. P. Dunlap, Superintendent
Safety and Inspection Division

AFB:mrh

cc: Mr. C. E. Center
Mr. J. C. Robinson (2)

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 PLANT
OAK RIDGE, TENNESSEE

CENTRAL SAFETY COMMITTEE MEETING MINUTES
June 22, 1948

Attendance: Mr. W. B. Humes
Mr. A. P. Huber
Mr. C. A. Babcock
Mr. R. M. Baton
Dr. C. K. Beck
Mr. S. Cromer
Mr. A. P. Dunlap
Mr. J. A. Elkins
Mr. H. R. House
Mr. J. J. McCarthy
Dr. F. W. Hurd
Mr. J. P. Murray
Mr. D. H. Rader
Mr. W. L. Richardson
Mr. D. H. Riley
Mr. B. Speyers
Mr. R. R. Wolf (Represented by
Mr. G. W. Flack)
Mr. M. P. McDermott
Mr. F. R. Dowling (AEC)

Absent: Mr. J. J. Fritz

✓ Safety Award

The bronze plaque awarded by the Company for operating 1,567,172 man-hours without a major injury last year was displayed. Mr. Humes mentioned that the Y-12 and X-10 Plants had no objections to the K-25 Plant's going ahead with individual safety awards. (Announcement of the award and a picture of it will appear in the Carbine Courier.) One copy of large or actual size framed photograph of the plaque will be furnished each division superintendent by the Safety Department. Smaller, 8½" x 11", photographs will be furnished in accordance with divisional needs as requested by the respective superintendents. The Safety Department is to secure sample safety awards, at which time Mr. Humes will appoint a committee to select those which are most desirable.

The meeting was called to order at 10:00 a.m., by W. B. Humes, Plant Superintendent, and the minutes of the May meeting were approved.

Injury Analysis and Record for May

Mr. Humes reviewed the May report pointing out that we had four major injuries, the same as for the last three months, but that the severity rate was the highest of any this year. The reduction in the potential frequency rate was gratifying, and the plant this year has operated now since June 5 without a lost-time accident, or approximately 500,000 hours. The Manufacturing Office Division was complimented for having exceeded its best previous record of 188 days without a major injury and as of this date has completed 199 days without a major injury. The one major injury occurring in the Maintenance Division during May was unavoidable from supervision's point of view. This represents a considerable reduction in major injuries for this division over the past several months' experience.

Attention was directed to Page 7 of the report, and it was pointed out that each supervisor should re-review his own operations and determine the need

June 22, 1948

for revising existing job procedures or safety rules and supplementing those in existence. The Safety Department offered to direct written comments to the various divisions on the safety rules which are presently in existence so as to pass along to each division the composite experience of others who may have prepared similar rules. The committee felt that this would be very beneficial, and the Safety Department was requested to do this. It was pointed out that the existing rules in many cases could be shortened by avoiding repetition of plant and divisional rules. In other words, when rules for a particular operation are written up, the first rule should be to obey all plant and divisional safety rules rather than repeat the rules themselves. As presented in the monthly report, all present agreed that the assemblage of individual safety rules into a large book was not the goal, but rather to stimulate thinking on the part of employees and supervision along safe work methods. Everyone agreed that a combination of safety meetings, posted rules on bulletin boards, specific rules developed by a supervisor and employee correction of infractions by supervision on the job, would be the best method to follow in convincing the employee that unsafe working habits will not be tolerated.

New Business

At this point, a telephone call was received announcing the arrival of a 6-pound, 7-ounce baby girl in the _____ household. All present extended best wishes for the mother and daughter.

Areas Requiring the Wearing of Safety Glasses

Mr. Speyers introduced a discussion of this subject adding that he would like to have extended the restrictions to include most maintenance shops but had not done so because employees were not all equipped with safety glasses especially those requiring prescription-ground glasses. It is the understanding of the Safety Department that this condition should not exist because the Medical Department is up to date on eye examinations and delivery of Rx safety glasses is normal, taking from four to six weeks. Mr. Humes suggested that designation of areas be handled by respective division superintendents wherever they felt it was necessary. Any of the division superintendents noting inadequate service in the procurement and fitting of safety glasses should present tangible evidence to the Safety and Medical Groups and bring the matter up again.

Status of Rescue Squad Training

Mr. Dunlap reviewed the progress made to date. One squad has already passed the physical examination. The Training Department expects the training headquarters to be revamped within another week so that they can start training the squad in the use of breathing apparatus and first aid.

Plant Air and Water Sampling Program

Mr. Dunlap announced that there would be a meeting of this committee in the "A" Laboratory Building today at 3:00 p.m., for the purpose of reviewing the present program.

June 22, 1948

Sale of Safety Shoes

Mr. Humes stated that Carbide had requested approval from A.E.C. to sell safety shoes at \$2.00 less than average list price to employees. Approval is expected by next Tuesday, June 29, at which time this policy may be made known to Y-12 personnel through the Y-12 Bulletin. There may be a discussion with the Union prior to release of the information through line organization to K-25 personnel. Further details concerning this will be forthcoming at the next Superintendents' Meeting; and until then, no announcements should be made.

Proposed Accident Reporting Procedure

Mr. Dunlap was requested to briefly review the proposed accident reporting procedure which was mailed out to the committee members a few days ago. After discussion, Mr. Humes stated that it would be necessary to show a reduction in cost to justify changing the present system although he felt that the proposal would do this. He appointed a committee, consisting of Messrs. Wolf, McCarthy, and Dunlap to represent the service groups concerned, and Messrs. Huber and Riley to represent plant supervision, to study the proposal and make recommendations to the committee.

Disaster Plan

The three Carbide plants have been requested to work out a disaster plan for the area with the cooperation of A.E.C. at Townsite. Mr. McDermott has been appointed to coordinate plans of the three Carbide plants. Mr. Dunlap is to handle the K-25 Plant plan, and Mr. Harvey Mills is chairman of the Oak Ridge group.



A. P. Dunlap, Superintendent
Safety and Inspection Division

WLR:ec

cc: Mr. C. E. Center
Mr. J. C. Robinson (2)

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 PLANT
OAK RIDGE, TENNESSEE

CENTRAL SAFETY COMMITTEE MEETING MINUTES
May 25, 1948

Attendance:	Mr. W. B. Humes	Mr. J. J. Fritz
	Mr. A. P. Huber	Mr. J. J. McCarthy
	Mr. C. A. Babcock	Dr. F. W. Hurd
	Mr. R. M. Batch	Mr. J. P. Murray
	Dr. C. K. Beck	Mr. W. L. Richardson
	Mr. S. Cromer	Mr. D. H. Riley, Jr.
	Mr. A. P. Dunlap	Mr. J. E. Scott
	Mr. J. A. Elkins	Mr. B. Speyers
		Mr. R. R. Wolf

Absent: Mr. H. R. House

The meeting was called to order at 10 a.m., by W. B. Humes, Plant Superintendent, and the minutes of the April meeting were approved.

Injury Analysis and Record for April

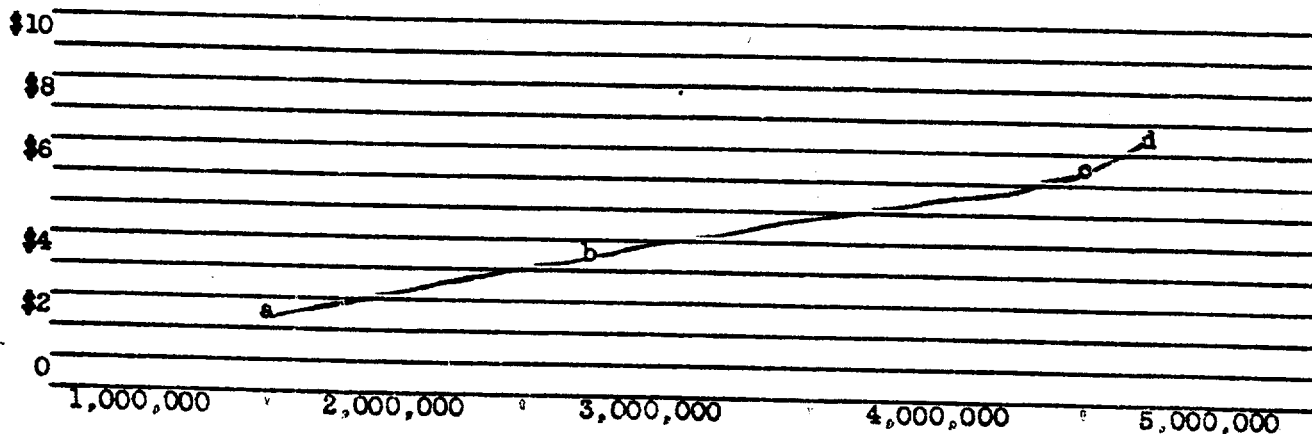
In reviewing the plant's accident experience for April, Mr. Humes emphasized the fact that the four major injuries suffered during the month involved Maintenance personnel as did approximately seventy-five per cent of the major and sub-major injuries since the first of the year. Mr. Speyers said that he would appreciate suggestions from all present in eliminating these accidents, adding that the heavy work load on Maintenance Forces and pressure by operating groups to meet work completion deadlines were contributory to some of the accidents. The Safety and Inspection Division was requested to concentrate on helping Maintenance supervision in their safety problems.

Old Business

✓ Safety Award Plan--Mr. Humes reviewed a safety award plan which embodies the present UCC award plan, plus other features which have proved successful elsewhere. The main features of the plan are as follows: 1. That awards would be made for over-all plant performance rather than individual divisions. 2. That all employees would be awarded individual gifts if the plant qualified under any one of the following requirements:

- a. Operating for one calendar year or one and one-half million consecutive man-hours within a calendar year without a major injury, whichever occurs first.
- b. Maintenance of a plant cumulative frequency rate of less than 1.5 for a calendar year.

- c. Reduction in frequency rate by fifty per cent over the preceding year.
- d. Gifts will be made in accordance with the following:
 - (1) A \$2.00 gift award to each employee upon reaching a (see chart below).
 - (2) At b, plant is eligible for a second \$2.00 gift award, but this will be accumulated until the record is broken at the rate of \$2.00 per one and one-half million man-hours worked until a total of five million man-hours have been worked, at which time a total award of \$5.00 will be paid.



If the record is broken between any of the intervening points; that is, between b and c, or c and d, the plant will receive benefits for each one and one-half million man-hours worked at the rate of \$2.00 per employee.

It was the consensus of the committee that an award to each employee in the plant would stimulate a plant spirit wherein the employees of one division will be directly concerned with the safety performance of employees of the other divisions and that all will cooperate in seeking ways and means to eliminate unsafe practices and conditions. Recognition of an individual division's performance under this plan is not to be overlooked, however, and a suitable plaque or trophy may be given to individual divisions or possibly departments with outstanding records. Mr. Humes asked Messrs. Wolf and Dunlap to assist him in completing the details of the plan and announced that approvals of the company and the Atomic Energy Commission would have to be secured prior to placing the plan in effect.

Rescue Training--The minutes of the subcommittee appointed to consider this matter were reviewed by the group (see revised copy attached). The Training Department, Safety Department, and General Foreman's Office are to put the plan into effect immediately.

New Business

Accident Chargeability--A letter was distributed to the group clarifying the corporation policy on chargeability of accidents which reads as follows:

"For the purpose of maintaining accident records which can be compared with other units of the Corporation, it is the policy of the K-25 Plant to report all occupational injuries and illnesses in accordance with the provisions of the UCC Industrial Injury Code.

"Section 2.1.5.2 of the code is quoted herein to provide a clarification of the status of employees transferred between divisions, etc.

"Accidents are chargeable to the division or plant of the company having jurisdiction over the employee at the time of the injury, regardless of where the accident occurs."

"The intent of this rule is to charge any occupational injury against the division or plant who is exercising supervision (irrespective of formal transfer of employees through payroll, records, etc.) over the employee at the time the injury is incurred. From this it can be seen that inequities will exist from time to time in computing accident frequency and severity due to the accumulation of accident free exposure hours by a division on an employee who is temporarily transferred elsewhere and in the event of injury to such an employee, the division or plant who is exercising supervision over the employee involved will be charged with the injury even though they have never been credited with the employee exposure hours."

Replacement by the Company of Employees' Shoes and Clothing When Contaminated or Damaged--The Safety Department requested advice on how to handle such situations when they arise and proposed the following:

"It is company policy to exercise every reasonable precaution to protect the health and safety of all employees. To this end the company provides the necessary protective equipment to preclude employees carrying contaminated materials on their persons off the plant area. In the event an employee's personal clothing becomes contaminated it is the responsibility of the immediate supervisor to take necessary steps to properly decontaminate such clothing in accordance with plant procedure where possible. When this cannot be done, to provide for replacement at no cost to the employee. In the event of contamination of shoes, replacement will be made from the safety shoe stocks carried at the K-25 Plant.

"In the event of damage to safety shoes as a result of defects or accidents, such cases shall be brought to the attention of the Safety Department, who will consider the merits of each case and determine whether or not replacement of the shoes should be made at no cost to the employee.

"Damage to personal clothing which may be considered as a risk of employment, e.g., clothing of maintenance employees torn on nails, protruding metal, etc., and damage to clothing as a result of negligence or deliberate misuse on the part of the employee shall not be considered replaceable under the above-mentioned policy."

It was agreed that the above constituted a good basis for handling such matters but does not at present require a plant bulletin to all members of supervision due to the infrequency of such occurrences. For the present, such matters are to be handled by the Manufacturing Office Division in accordance with the recommendation of the division superintendent concerned and the Safety Department.

Review of May 10, 1948, Company-Union Safety Meeting--The Union has complained that information relative to radiation hazards in the plant is not being passed down the line to employees by supervision. Mr. Humes asked that all divisions thoroughly review the Monthly Health Physics Report and make use of the information which it contains to clarify this matter for the employees.



A. P. Dunlap, Superintendent
Safety and Inspection Division

WLR:ec

Attachment

cc: Mr. C. E. Genter
Mr. J. C. Robanson (2)

I N T E R C O M P A N Y C O R R E S P O N D E N C E

Insert
(name) COMPANY Carbide and Carbon Chemicals Corporation LOCATION Post Office Box P
Oak Ridge, Tennessee

Mr. W. B. Humes
K-1001 Building

DATE: May 27, 1948

Copy to: Mr. G. W. Flack
Mr. K. C. McGregor
Mr. J. P. Murray
Mr. D. C. Rader
Mr. D. H. Riley, Jr.
Mr. B. Speyers
Mr. R. A. Winkel
Mr. A. F. Becher

SUBJECT: Rescue Training

A meeting of the subcommittee appointed for the purpose of considering the rescue training program submitted by the Safety and Inspection Division was held at 1:30 p.m., April 29, 1948, at which time all members were present.

A general discussion of the over-all program followed, and it was agreed that it would be desirable to formalize rescue training for the K-25 Plant with specific recommendations as listed below being offered for your review and approval:

1. Two emergency squads of six men each per shift to be activated which will cover emergencies anywhere within the plant area and serve as back-up companies to assist the Fire Department. The squads will also be available to render assistance to outside facilities; such as, X-10 and Y-12, in the event of emergency. It was agreed that these squads would receive complete training initially, and would be retrained in conformance with the schedule submitted and in addition monthly practice sessions of two hours each would be instituted to maintain proficiency. Squad members would be selected by the Process Division Superintendent. (The job description is not to be rewritten; however, the intent is to remain the same; that is, selection of squad members to be made on the basis of job duties being such that a squad member could leave his work when called without undue interference with operations normally carried on.)* Mr. Murray indicated that it would be desirable to include one or more members in the Electrical Maintenance Division.

2. All divisions would continue to provide whatever training was deemed necessary by the division head to provide for coverage in the event of an emergency within their own facilities. This will vary according to divisional needs.

* Revised, Central Safety Committee Meeting May 25, 1948.

3. It was agreed that a special cost account should be set up to collect cost of the program; however, this should only include materials and supplies needed.

4. It is recommended that the rescue training procedure submitted by the Safety Department be put into effect.

5. Training and certification should be in accordance with the schedule provided except that sessions be limited to periods of two hours each.

6. Training Department should be responsible for maintenance of training records and make available to the Plant General Foreman a listing of those employees who have satisfactorily completed the prescribed course in training and in addition will set up a recall system to provide retraining at six months intervals in accordance with the requirements of the U. S. Bureau of Mines.

7. The Medical Department should examine individuals who will serve on emergency squads to make sure of their physical fitness.

8. The Safety Department should be responsible for the review of the over-all program and assist the Training Department and supervision in the development of the program.

9. Practice sessions should be set up under the direction of the Plant General Foremen to include training in emergencies by simulating actual field conditions on a routine basis.

10. Equipment and apparatus needed for training and drill work should be provided as outlined.



A. P. Dunlap, Superintendent
Safety and Inspection Division

at 10:00 a.m. 12/26/48 20 p.m.
 9 8-21-48

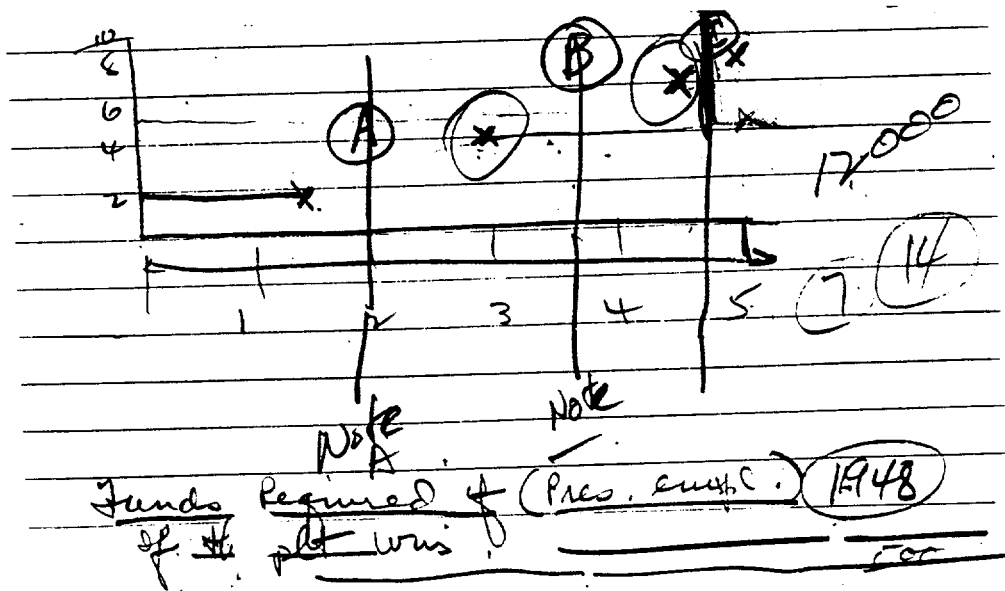
4500-14/4050-
 4.5
 2892

Mr. Dunlap:

Mr. Clarke hasn't received any word about the

move. It was also his understanding that Bob
 Levin would let him know a week in advance; however,
 he is agreeable to relinquishing the space when
 you say.

G.



D R A F T

INTER-COMPANY CORRESPONDENCE

Post Office Box P
OAK RIDGE, TENN.IN
N
COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION _____TO Mr. W. B. Humes
LOCATION K-1001 Building

DATE May 21, 1948

ANSWERING LETTER DATE

ATTENTION

COPY TO

Mr. A. P. Huber	Mr. J. J. McCarthy	SUBJECT Chargeability of Accidents
Mr. C. A. Babcock	Mr. J. P. Murray	
Mr. R. M. Batch	Dr. F. W. Hurd	
Dr. C. K. Beck	Mr. W. L. Richardson	
Mr. S. Cromer	Mr. D. H. Riley, Jr.	
Mr. A. P. Dunlap	Mr. B. Speyers	
Mr. J. A. Elkins	Mr. R. R. Wolf	
Mr. J. J. Fritz	Plant General Foreman	
Mr. H. R. House		

For the purpose of maintaining accident records which can be compared with other units of the Corporation, it is the policy of the K-25 Plant to report all occupational injuries and illnesses in accordance with the provisions of the UCC Industrial Injury Code.

Section 2.1.5.2 of the code is quoted herein to provide a clarification of the status of employees transferred between divisions, etc. "Accidents are chargeable to the division or plant of the company having jurisdiction over the employee at the time of the injury, regardless of where the accidents occurs."

The intent of this rule is to charge any occupational injury against ~~the division or plant who is exercising supervision~~ ^{irrespective of formal transfer of employees through payroll records etc.} the division or plant who is exercising supervision over the employee at the time the injury is incurred. From this ~~the~~ it can be seen that inequities will exist from time to time in computing accident frequency and severity due to the accumulation of accident free exposure hours by a division on a employee who is temporarily transferred elsewhere and in the event of injury to such an employee, the division or plant who is exercising supervision over the employee working, will be charged with the injury even though they have never been credited with the employee exposure hours.

APD:AFB:mrh

A. P. Dunlap, Superintendent
Safety and Inspection Division

THIS FORM FOR INTER-COMPANY CORRESPONDENCE ONLY

INTER-COMPANY CORRESPONDENCE

Post Office Box P
OAK RIDGE, TENN.

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION _____

TO Mr. W. B. Humes
LOCATION K-1001 Building

DATE May 19, 1948

ANSWERING LETTER DATE

ATTENTION
COPY TO

Mr. A. P. Huber	Mr. J. J. McCarthy	SUBJECT Safety Award Plan
Mr. C. A. Babcock	Dr. F. W. Hurd	
Mr. R. M. Batch	Mr. J. P. Murray	
Dr. C. K. Beck	Mr. W. L. Richardson	
Mr. S. Cromer	Mr. D. H. Riley, Jr.	
Mr. A. P. Dunlap	Mr. B. Speyers	
Mr. J. A. Elkins	Mr. R. R. Wolf	
Mr. J. J. Fritz	Plant General Foreman	
Mr. H. R. House		

AFB

Safe acting and safe minded employees are an essential part of any accident prevention program and to stimulate a proper safety attitude on the part of all employees is a primary objective of the plant safety program. A review of the causative factors of plant accidents reveals that the assignment of responsibility made indicates insufficient safety morale is ever recurring.

It is felt that an award system which will recognize outstanding progress on an equitable basis for the plant should consider recognition of the individuals who have participated in the program which may result in the granting of the award to the plant, which we feel will stimulate a safety consciousness on the part of all concerned. It is felt that an award should be made on the basis of plant records established rather than for individual divisions who have ^{had} ~~attained or achieved~~ excellent performance records in the past. We feel that by recognizing the progress of individual divisions this will tend to create dissatisfaction in that no equitable means can be established for rating one division versus another due to ^{differences in degree of hazard,} ~~complexity of operation,~~ man hours of exposure, etc.

Consideration should be given to stimulate^{ing} a plant spirit where the employees of one division will be directly concerned with the performance of those employees of another division. To illustrate - if an award were made on a divisional basis, the employees of a particular division would be interested only in the work performance of divisional employees and there would be no incentive for calling attention to unsafe work practices and conditions which are the direct responsibility of another division. Conversely if interest could be created in the plant record then one division will be concerned with the record of another division in that it affects the over-all plant performance which will or will not result in individual awards being made to all employees.

A gradual refinement of the award plan into an overall safety rating system which does not consider accident records only should result in ~~keen~~^{Keen} competition in the future. The objectives of such a plan should -

- a. Encourage cooperation on the part of all employees in every way to prevent accidents directly or indirectly.
- b. Encourage employees to suggest practical means for reducing and preventing accidents. (This should not be combined with production suggestions.)

During the year 1947 Carbide employees at the K-25 Plant worked a period of 1,567,172* consecutive man hours without experiencing a major injury and are eligible for an award under the UCC Safety Award Plan. In connection with the presentation of the UCC award, individual recognition could be made for the K25 employees who helped establish this record.

*Record broken in 1948 due to acceptance of late reported injury.

In accordance with the provisions of the contract, (Section 18, Carbide miscellaneous policies), funds are available (a maximum of \$2.00 per capita per annum) which would allow a small gift to be given each employee at this time. (Note: \$210.00 has been allocated under this policy for First Aid Awards during 1947.) Future awards would be made beginning with the calendar year 1948, immediately following the close out of the plant accident record which generally occurs by March 1st of the subsequent year and would be in accordance with the following requirements:

1. Plant recognition all employees to be awarded individual gifts. Awards under this plan would be based on the plant qualifying under any one of the following requirements:
 - a. Operating for one calendar year or one and one-half million consecutive man hours within a calendar year without a major injury whichever occurs first.
 - b. Maintenance of a plant cumulative frequency rate of less than 1.5 for a calendar year.
 - c. Reduction in frequency rate by 50% over the preceeding year.
 - d. Individual awards ^{\$2.00} would be made each time the plant qualified on the basis of one and one-half million consecutive man hours worked without a major injury except when this record is continued ^{unbroken}. In this event when a total of five million man hours have been worked it would be ^{set 5,000,000 in} desirable to (double) the amount set aside for the regular awards given and arrange for presentation of a plant award to be made by a high company official.

Costs

1. \$2.00 gift per person based on 1947 record -

Total funds required - (\$2.00 per capita 5322 employees
5/30/48) \$10,644.00

Total funds allocated during 1947 for First Aid
Awards) 210.00

Total funds available at \$2.00 per capita (5271 employees). 10,542.00

Maximum reimbursable 10,854.00

Non-Reimbursable 312.00

However, the record as previously reported at the end of year 1947 has since been revised due to settlement of a previously unreported case.

2. On the basis of our average performance for the past three (3) years the plant would have qualified for awards as follows:

- a. Operating 1,500,000 consecutive man hours without a major injury - once - approximate cost of awards (\$10,542.00).
- b. Reduction in frequency rate by 50% - once. ^{approximate cost of awards} / The average number ^{three} / \$13,646. of exposure hours per major injury for the ^{three} year period ending December 1947 indicates that to qualify for award the average plant performance would have to be improved by approximately 800%.

3. If a frequency rate of 1.5 or less can be attained then the possibility of operating in excess of 1,500,000 man hours will be enhanced as the exposure hours for 1948 are being accumulated at the rate of approximately 900,000 per month, and when a comparison is made with the National Records established -

Chemical Industry (1946) - 11,361,846 - E. I. duPont - Old Hickory

All Industry (1946) - 18,871,795 - E. I. duPont - Textiles

it is apparent that the 1,500,000 man hours requirement is by no means a record to strive for. We should rather set our sights at 5,000,000 man hours and plan accordingly.

If a plan is effectuated involving all plants at Oak Ridge, there must be an agreement reached by the various Safety and Medical Groups relative to rules for acceptance of major and sub-major injuries. There can be no equitable basis for plant awards if a fractured finger results in lost time at K-25 and is carried as a minor injury elsewhere, or visa-versa.

X-10--doesn't have an award system at present.

Y-12 has some type. Awards are made on basis of suggestions made, which includes both production and safety.

Becker/mg

① Check Availability of funds under contract

② 1,500,000 MAN HOURS
oil

③ 1 year no good-suggest 1/2 best previous record

④ Must be adopted on 3 plant basis

⑤ Costs

Lo Mr. Dunlap

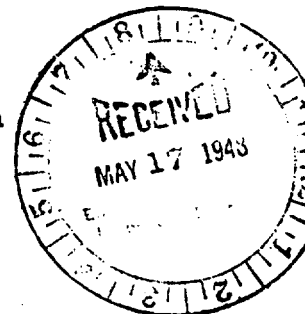
D R A F T

INTER-COMPANY CORRESPONDENCE

Post Office Box P
OAK RIDGE, TENN.

(INSERT NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION

TO	Mr. W. B. Humes	Mr. H. R. House	DATE	May 10, 1948
LOCATION	Mr. A. P. Huber	Dr. F. W. Hurd	ANSWERING LETTER DATE	
ATTENTION	Mr. C. A. Babcock	Mr. J. J. McCarthy	SUBJECT	Safety Award Plan
COPY TO	Mr. R. M. Batch	Mr. J. P. Murray		
	Dr. C. K. Beck	Mr. W. L. Richardson		
	Mr. S. Cromer	Mr. D. H. Riley, Jr.		
	Mr. A. P. Dunlap	Mr. B. Speyers		
	Mr. J. A. Elkins	Mr. R. R. Wolf		
	Mr. J. J. Fritz	General Foreman		



Safe acting and safe minded employees are an essential part of any and accident prevention program/to stimulate a proper safety attitude on the part of all employees is a primary objective of the plant safety program. As evidenced in accident reports being submitted by supervision the causative factor of plant accidents entitled insufficient safety morale is ever recurring and is presently assigned as one of the principal causes. In many cases we find that this can be traced back to a lack of extreme care and desire to prevent personal injury. It is felt that an award system which will recognize outstanding progress on an equitable basis for the plant, the operating divisions of the plant, and for the individuals concerned will stimulate a safety consciousness on the part of all concerned. Gradual refinement of the award plan into an overall safetyrating system should result in keen competition in the future. Objectives of such a plan should -

- a. Encourage cooperation on the part of all employees in every way to prevent accidents directly or indirectly
- b. Encourage employees to suggest practical means for reducing and preventing accidents

It is expected that operation of the plan will provide for refinement eventually and improvement to/covers ~~recognition~~ recognition for every achievement pertaining to safety. It is not recommended that such awards be consolidated with other

activities as suggestions for improvement or refinement in production, processes, or equipment. In accordance with the provisions of the contract, funds are available (\$2.00 per captive), to effectuate such a program immediately. In the past no attempts have been made to utilize such funds for the promotion of an award system.

During the year 1947 Carbide employees at the K-25 Plant worked a period of 1,567,172*consecutive man hours without experiencing a major injury and are eligible for an award under the UCC Safety Award Plan. In connection with this award, individual recognition could be made for the K-25 employees who helped establish this record. Future awards would be made beginning with ^{the} calendar year 1948 in accordance with the following requirements:

1. Plant Recognition (all employees) - Individual gifts to be awarded all employees participating.

Awards under this plan may be based on plant qualification under any one of the following requirements:

- a. Reduction in frequency rate by 50% over the preceding year
- b. Maintenance of a plant cumulative frequency rate of less than 1.5 for any given year
- c. Operating for one calendar year or one and one-half million consecutive man hours in a calendar year without a major injury.

2. Individual recognition would be given to the individual plant divisions who comply with any one of the following requirements at a dinner meeting sponsored by the company. All awards could be scheduled immediately following close out of the plant record (generally by March 1st).

11,361,846 as reported in 1946
5,000,000 to comply 11,500,000
Textile 18,831,395 - 7 which

(* Broken due to acceptance of late reported injury)

- a. Operating one year without a major injury or completing a calendar year with a cumulative frequency rate of less than 1.5
- b. Exceed one and one-half million consecutive man hours in one calendar year without experiencing a major injury.

The plant records established to date which would have made them eligible for an award under the proposed system are as follows:

- a. Reduction in frequency rate by 50% - occurred once in 1946
- b. Maintenance of a plant cumulative frequency rate of less than 1.5 - never
- c. Operating for one calendar year or one and one-half million consecutive man hours - occurred once in four (4) years

Divisional records established during the year 1947 which would have made them eligible for an award -

- a. Power Division - operated 1,661,072 through December 1947
Process Division - operated 1,790,035 through April 1947
- b. Plant Engineering, Research Laboratories, Power Division, Industrial Relations, Safety and Inspection Division - operated one (1) year without disabling injury

Best Previous Record

Plant - 1,410,580* - 1946

(Broken due to acceptance of late reported injury)

DRAFT

INTER-COMPANY CORRESPONDENCE

(^{RT}_E) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P
OAK RIDGE, TENN.

TO Mr. W. B. Humes
LOCATION K-1001 Building

DATE May 21, 1948

ANSWERING LETTER DATE

ATTENTION
COPY TO

Mr. W. L. Richardson
Mr. A. F. Becher
Mr. S. Visner

SUBJECT Replacement of Shoes and
Clothing for Employees

the attached
It is suggested that ~~a policy as outlined below~~ be established to clarify the company position in the replacement of shoes and clothing which have become contaminated through plant use and to establish a basis for the replacement of safety shoes purchased by employees which become damaged through plant accident.

The Safety Department in the past has exchanged safety shoes damaged by accident for new shoes when such incidents have come to their attention; however, it is felt that this should be an established policy which would be uniformly administered for the benefit of all employees. — *See pg 2*

PROPOSED PLANT BULLETIN

It is company policy to exercise every reasonable precaution to protect the health and safety of all employees. To this end the company provides the necessary protective equipment to preclude employees carrying contaminated materials on their persons off the plant area. In the event an employee's personal clothing becomes contaminated it is the responsibility of the immediate supervisor to take necessary steps to properly decontaminate such clothing in accordance with plant procedure where possible. When this cannot be done, to provide for replacement at no cost to the employee. In the event of contamination of shoes, replacement will be made from the safety shoe stocks carried at the K-25 Plant.

In the event of damage to safety shoes as a result of defects or accidents, such cases shall be brought to the attention of the Safety Department, who will consider the merits of each case and determine whether or not replacement of the shoes should be made at no cost to the employee."

Continued P1 Consideration should be given to clarifying this problem at an early date as we have found numerous cases in the past when adjustment ^{was} ~~has been~~ made to employees on the basis of defective safety shoes & shoes damaged by ~~plant~~ ^{plant} accidents. ~~and~~ Lacking a definite policy in this regard, we feel that there is a possibility of discrimination being shown employees of the various divisions.

APD:AFB:mrh

A. P. Dunlap, Superintendent
Safety and Inspection Division

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 Plant
Oak Ridge, Tennessee

CENTRAL SAFETY COMMITTEE MEETING MINUTES

April 20, 1948

Attendance: Mr. W. B. Humes Mr. J. J. Fritz
Mr. A. P. Huber Mr. H. R. House
Mr. C. A. Babcock Mr. J. J. McCarthy
Mr. R. M. Batch Mr. J. P. Murray
Dr. C. K. Beck Mr. W. L. Richardson
Mr. S. Cromer Mr. B. Speyers
Mr. A. P. Dunlap Mr. R. R. Wolf
Mr. J. A. Elkins Mr. F. R. Dowling (AEC)
Mr. A. A. Forseman

Absentees: Mr. S. C. Barnett Mr. D. H. Riley, Jr.
Dr. F. W. Hurd

The meeting was called to order at 10:00 a.m., by W. B. Humes, Plant Superintendent. The minutes of the March meeting were approved.

Old Business

None.

New Business

Addition to Established Policy, "Reporting of Material Releases"--An addition to the present policy of reporting material releases was approved as outlined in the attached bulletin. This change will result in the reporting of releases of toxic and corrosive materials in addition to radioactive items, and should tend to equally emphasize this type material release with releases of radioactive materials.

Proposed Consolidation of Fire Squads, First-aid Squads, and First-aid Rescue Squads--The attached bulletin outlining a proposal to consolidate the emergency squads in the Plant was distributed for review by the Committee. A subcommittee, consisting of A. P. Dunlap, B. Speyers, J. P. Murray, R. R. Wolf, J. J. McCarthy, and D. H. Riley, Jr., was appointed to review the matter and make recommendations to the Central Safety Committee.

Injury Analysis and Record for March--Mr. Humes reviewed the report briefly calling attention to the fact that the majority of accidents still occur from "human causes," most of which appear to be correctable. Supervision needs to continue to place emphasis on employees' training and attitude toward safety, making certain that adequate safety instructions are given at the time of work assignments, and that the work methods are reviewed from time to time on the job to insure the employees' cooperation and understanding of what is required.

Mr. Humes stated that it was encouraging to note that four of our divisions have continued to better their best previous records and that the Process Division although not bettering their best previous records have now worked 175 days without a major injury and are closely approaching 1,000,000 exposure hours.

Mr. Speyers reviewed recent crane accidents, giving the main provisions of a Maintenance safety instruction covering the movement of heavy equipment about the Plant.

The Committee requested that in the future the table on Page 9 of the report be supplemented with man-hours operated.

Mr. Wolf again suggested that the report include a breakdown of attendance at safety meetings, by divisions, etc., but was advised that this cannot be accomplished until the method of preparing minutes of safety meetings is revised to show names of those attending and those absent, with reason for absence given. In order to achieve this suggestion and to assist supervisors in properly conducting safety meetings, it was agreed that safety training material should be prepared by the Safety Department for presentation to supervision by the Training Department through our Supervisory Conference Program. This material should also include information on how to investigate an accident and prepare a report.

Safety Award Plan--There seems to be much need for a suitable safety award plan which the Company could offer to show that it appreciated the efforts of employees for a good safety performance. Mr. Humes asked Mr. Dunlap to assist him in devising such a plan for presentation to the Committee at the next meeting.

Review of Company-Union Safety Meeting Minutes--Mr. Dunlap briefly reviewed the activities of this committee meeting which was held April 5. There were no items brought up requiring action on the part of the Central Safety Committee. Most of the items previously brought up by the Union members have been referred to line organization for handling.

A. P. Dunlap
A. P. Dunlap, Superintendent
Safety and Inspection Division

WLR:ec

Attachments

cc: Mr. C. E. Center
Mr. J. C. Robinson (2)

I N T E R - C O M P A N Y C O R R E S P O N D E N C E

Insert
(Name)

COMPANY Carbide and Carbon Chemicals Corporation LOCATION Post Office Box P
Oak Ridge, Tenn.

TO: Mr. W. B. Humes Mr. H. R. House DATE: April 19, 1948
Mr. S. C. Barnett Dr. F. W. Hurd
Mr. A. P. Huber Mr. M. F. McDermott SUBJECT: Material Release Report
Mr. C. A. Babcock Mr. R. M. Batch
Dr. C. K. Beck Mr. W. L. Richardson
Mr. S. Cromer Mr. D. H. Riley, Jr.
Mr. A. P. Dunlap Mr. B. Speyers
Mr. J. A. Elkins Mr. R. R. Wolf
Mr. A. A. Forsman

Supplementary to the bulletin issued under date of March 19, 1948, subject as above, it is suggested that the following be added to the policy as stated therein:

"It is the policy of the K-25 Plant that all accidental spills, escapes or releases of radioactive, toxic or corrosive materials in any working locale be reported on Form WCX-766 (Dec. 1947)." The Form Appendage distributed for inclusion in the Standard Practice Procedure Manual covers in general, instructions for completion and distribution of the necessary forms. Previous instructions issued relative to the report of "above tolerance" exposure, and release of radioactive materials are not affected and should be in accordance with the instructions contained in the previous memorandum.

The above-mentioned supplement should provide an effective means for determining operating conditions, etc., at the time of accident involving spills or releases of radioactive, toxic, or corrosive materials, should prove to be of valuable assistance in determining exposures to personnel, and will furnish basic information required for the use of the Medical and Insurance Departments. In addition, this will allow for an evaluation to be made of operating procedures and equipment to determine corrective measures required to minimize recurrences.

INTER-COMPANY CORRESPONDENCE

rt
Name) COMPANY Carbide and Carbon Chemicals Corporation LOCATION Post Office Box P
Oak Ridge, Tennessee

TO: Mr. W. B. Humes Mr. H. R. House DATE: April 20, 1948
Mr. S. C. Barnett Mr. J. J. McCarthy
Mr. A. P. Huber Dr. F. W. Hurd
Mr. C. A. Babcock Mr. R. M. Batch SUBJECT: Rescue Training
Mr. S. Cromer Mr. D. H. Riley, Jr.
Dr. C. K. Beck Mr. B. Speyers
Mr. A. P. Dunlap Mr. W. L. Richardson
Mr. J. A. Elkins Mr. R. R. Wolf
General Foreman Mr. J. J. Fritz

Considerable effort has been put forth during the period of plant operation to train employees so that they might efficiently aid in rescue work should an emergency occur. This basic training has included U. S. Bureau of Mines First Aid and Oxygen Breathing Apparatus instruction.

From experience gained at Texas City and other lesser disasters it is evident that a more comprehensive training program is necessary to fully insure efficient organized rescue operations if the unexpected occurs. Furthermore, to maintain proficiency additional First Aid Training must be given each year and the substitution of "Chemox" equipment for the One Hour Oxygen Breathing equipment has necessitated initial training in the use of this new apparatus. This training must be repeated each six months.

It is anticipated that an over-all Disaster Plan for the Oak Ridge Area will soon be formulated. Immediate institution at K-25 of a formalized Rescue Training Program would allow greater participation in the preparation of this over-all plan. It could very well be that the K-25 Plan would be accepted as a model for the Oak Ridge Area.

Carefully selected personnel, adequately trained in all phases of rescue work will result in more reliable rescue teams at less cost than training conducted without coordination of the various phases. The maintenance of centralized training records will, at the time of an emergency, make more readily available a roster of qualified individuals and will materially aid in maintaining a high degree of proficiency through regularly scheduled recall and re-training or replacement.

RECOMMENDATIONS

1. Re-establish and formalize plant policy, re: organization and training of plant rescue squads.

2. Develop formal rescue training procedure.

*2 squads per shift
complete plant
coverage available
for out side help*

April 20, 1948

3. Establish necessary records.
4. Improve training facilities.
5. Coordinate training of all rescue squads as rapidly as possible.
6. Provide for certification of men who after training prove proficient.
7. Develop re-call system and re-train rescue squad members to maintain proficiency.

SUGGESTED PLANT POLICY

1. It should be the responsibility of each Division Head to review the rescue squad requirements of his division for the purpose of determining the number of squads necessary to adequately cover all areas, all shifts, ~~and to send assistance to other divisions when necessary.~~
2. It should be *Specialized training is overall* each Division's responsibility to select men for rescue training, organize squads and make these men available on regular schedule for the necessary training. *Sub*
Forum
pilots
3. It should be the responsibility of the Medical Department to develop physical standards for rescue squad members and to examine rescue squad trainees before start of training. (U. S. Bureau of Mines physical requirements which are now used may be modified as to requirements for vision and teeth due to type of operations and types of equipment used.)
4. The Training Department should be responsible for the following:

- a. Developing an adequate training procedure.
- b. Coordinating the training of rescue squads.
- c. Maintaining training records.
- d. Providing certification for trained men at completion of training.

5. The Safety Department should be responsible for the review of the Rescue Training Program to determine its adequacy, and will assist the Training Department in the development of an adequate training procedure.

COST ACCOUNTING

It is suggested that a special cost account be set-up to collect the cost of this program.

SUGGESTED RESCUE TRAINING PROCEDURE

1. Physical Examination (only physically qualified employees should be trained). Time needed about one hour.
2. Orientation - Explanation of rescue training. What is expected of each squad member, etc. Time needed about one-half hour.
3. First Aid Training - Modified U. S. Bureau of Mines First Aid Training with special emphasis on artificial respiration, control of bleeding and transportation of injured. Time needed about fifteen hours.
4. Respiratory Protective Devices and use of Impermeable Suits - Limitations, use, care and testing of Chemox Masks, All-Service Masks, U. S. Army Assault Masks, Combination Hose Masks, and Impermeable Suits. Time needed about four hours.
5. Basic Fire Fighting
 - a. Fire extinguishers
 - b. Fire fighting equipment, including hose, ladders, etc.
 - c. Working with Fire Department personnel to insure maximum efficiency at time of emergency.Time needed about four hours.
6. Special Training
 - a. Radiation
 - b. Chemical
 - c. Electrical

Special training material should be prepared and presented by qualified experts. Time needed about three hours.

TRAINING AND CERTIFICATION

The initial training could be accomplished in approximately twenty-seven and one-half (27½) hours. This training could be divided into training periods of two (2) to ~~four (4) hours each~~. Those men who have already received First Aid or other training under previous plans could be trained in a shorter period.

Subject: Rescue Training

- 4 -

April 20, 1948

At the completion of the required training qualified men would be given a "Record of Rescue Training Card", certified by the instructor and signed by the Division Head.

Front View of Card

RESCUE TRAINING RECORD
Carbide and Carbon Chemicals Corporation
Oak Ridge, Tennessee

No. _____ Date _____
Void six months from above date

Name _____ Badge _____

Division _____

K-25

Plant

Division Head _____

Back View of Card

RECORD

Training	Date	Instructor
Phys. Exam.		
First Aid		
Mask Tr.		
Fire Tr.		
Spec. Tr.		

CERTIFIED -----

PRACTICE SESSIONS

PRACTICE SESSIONS

Organized practice sessions of one (1) to two (2) hours per month on regular schedule should be provided to maintain proficiency.

Subject: Rescue Training

- 5 -

April 20, 1948

RE-TRAINING

In accordance with the recommendations of the U. S. Bureau of Mines it will be necessary to provide formal re-training at the intervals stated below.

Re-training in use of "Chemox" masks on regular schedule each six months. This re-training could be accomplished after the required physical examination as the practice session for that month. About two hours would be necessary. At the completion of this re-training period the man would be re-certified and a new card issued.

First Aid training once each year. This First Aid refresher training is accomplished in about ten hours.

TRAINING FACILITIES

Building K-1040 located in the K-27 Area is now used for Rescue Training. From a space standpoint this building is adequate; however, the following changes would improve the efficiency of the training program:

1. Seal smoke room
2. Provide adequate means of smoke generation
3. Provide heat for winter
4. Provide shower, change and locker facilities
5. Provide glassed observation front for instructor outside smoke room
6. Provide public address system for use by training instructor
7. Provide shutters for windows (to darken smoke room)
8. Provide training equipment - Estimated cost \$500.
 - a. Tunnel
 - b. Lifting weights
 - c. Exercise bicycles, etc.

INTER-COMPANY CORRESPONDENCE *file*

(INSERT) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P
OAK RIDGE, TENN.

TO **Memorandum to Files**
LOCATION

DATE **April 21, 1948**

ANSWERING LETTER DATE

ATTENTION

COPY TO **Mr. A. P. Dunlap**
✓ Mr. A. F. Beeher

SUBJECT **Central Safety Committee
Meeting Attendees and
Distribution of Committee
Meeting Minutes**

The following are considered as Central Safety Committee Meeting attendees:

W. B. Humes	H. R. House
S. C. Barnett	F. W. Hurd, Dr.
A. P. Huber	J. J. McCarthy
C. A. Babcock	J. Murray
R. M. Bates	W. L. Richardson
C. K. Beck, Dr.	D. H. Riley, Jr.
S. Cromer	B. Speyers
A. P. Dunlap	R. E. Wolf
J. A. Elkins	General Foreman
J. J. Fritz	

One copy of the meeting minutes is to be sent to each member, one copy to C. E. Center, and two copies to J. C. Robinson, A.E.C.

W. L. Richardson
W. L. Richardson
Safety and Inspection Division

WLR:ec

gule

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 Plant
Oak Ridge, Tennessee

CENTRAL SAFETY COMMITTEE MEETING MINUTES

March 24, 1948

Attendance: Mr. W. B. Humes
Mr. T. E. Lane
Mr. S. C. Barnett
Mr. A. P. Huber
Mr. C. A. Babcock
Mr. R. M. Batch
Dr. C. K. Beck
Mr. S. Cromer
Mr. A. P. Dunlap
Mr. J. J. Fritz

Mr. A. A. Forseman
Mr. H. R. House
Dr. F. W. Hurd
Mr. J. J. McCarthy
Mr. W. L. Richardson
Mr. D. H. Riley, Jr.
Mr. B. Speyers
Mr. R. R. Wolf
Mr. P. R. Dowling (AEC)

Absentees: Mr. J. A. Elkins

The meeting was called to order at 10:00 a.m., by W. B. Humes, Plant Superintendent. The minutes of the February meeting were approved.

Old Business

Safety Shoes--Mr. Dunlap handed out a letter addressed to the superintendents, dated March 19, subject, "Safety Shoes." Discussion of the letter was as follows: Safety shoes will not, as heretofore, be generally prescribed for protection against radioactive materials. Instead, wherever possible, rubber foot coverings, such as, rubbers, overshoes, rubber boots, or canvas booties, will be used to prevent or minimize shoe contamination; and only on those jobs where employees are required to wear protective footwear for prolonged periods such as an entire shift would they be given shoes. These shoes will be identified as Company property by painting the toes and employees will not be allowed to take them out of the Plant. All employees are to be encouraged to wear safety shoes not only for their own foot protection, but so that an equitable basis would exist if it became necessary for the company to replace personal shoes that became contaminated.

policy except confidential items

New Business

Reporting of Material Releases--The following policy was established at the K-25 Plant:

It is the policy of the K-25 Plant that all accidental spills, escape, or release of uranium or other radioactive materials in any working locale be reported on Form WCX-766 (Dec. 1947), which is available in stationery stores. Instructions for filling out the forms are contained in the form appendage recently distributed for inclusion in the standard practice procedure manual. Since the responsibility of completing the forms lies with the operating supervisor in charge of the facility or area involved, it is recognized that the problem of reporting the incident may not involve all divisions; however, each head is advised to determine the applicability of this form to his division and to designate persons who are to approve "Material Release Reports" originated within his division.

It is intended that all such incidents or accidents be reported whether or not it is believed that possible exposure to personnel occurred. The form is also to be used for reporting all incidents in which personnel are possibly exposed to above tolerance radiation of a penetrating type (beta, X, gamma, and neutron radiation) whether or not a spill has occurred. An example of this category would be the accidental exposure to an unshielded radium source.

Inquiries on the use of the form and requests for assistance in completing a form should be directed to the Radiation Hazards Department, Phone--8-3760.

Write policy - corrosive & toxic materials -
It is planned to extend the use of this form to include release of toxic and/or corrosive materials as is presently indicated in the form appendage and on the Material Release Report No. WCX-766, in the near future.

The principal reasons for adopting this policy are to provide the Company with accurate records of such instances, and to enable the Medical Department and other groups to relate the physiological effects, if any, on employees to reported field conditions.

Material Exposure--Heretofore, the term "Material Exposure" has been used rather loosely in the Plant, both with reference to individuals who might have been exposed and those who actually are exposed as determined by medical and laboratory findings. Henceforth, no individual is to be referred to as an "exposure case" until and unless positive medical findings indicate that such individual has actually been exposed.

Injury Analysis and Record for February--In view of the number of accidents occurring in the early part of March, a portion of the Superintendents' Meeting of March 16 was devoted to a discussion of the accident experience. Mr. Humes pointed out that the fundamental cause of the accidents apparently is complacency on the part of supervision and particularly a lack of sufficient safety morale on the part of the employee. There is evidence that the employee and/or his supervisor are not sufficiently aware of the importance of eliminating unsafe working conditions. Supervisory follow-up on instructions given and supervisory determination that the employee actually understands safe work practices associated with his job are two important considerations to improve Plant safety. Mr. Humes pointed out that supervision is doing a good job of collecting the facts concerning accidents that have already occurred but are not placing equal emphasis on eliminating accident causes.

we will be accenting this - Discuss with Campbell
In this meeting Mr. Humes reviewed portions of the Injury Analysis and Record and stated that it was his desire that all of the so-called heavy equipment at the Plant be studied with the expressed purpose of determining its suitability for the work we have to do. Mr. Humes also suggested that the Training Department investigate the possibility of having the manufacturers of this equipment send representatives to the Plant to train operating and inspection personnel in use, limitations, and hazard points of such equipment; also possibility of setting up a training course or qualifications examination for operators of the equipment.

Mr. Humes complimented the following divisions for having improved their previous accident experience records: Safety and Inspection, Plant Engineering, Electrical Maintenance, Industrial Relations, Laboratory, and Superintendence.

Safety Glasses--It was announced that a rumor had been circulated to the effect that it would be mandatory that all employees wear safety glasses while in the Plant. There is no basis for this rumor and supervision is requested to take note of this fact. It is, however, intended that safety glasses be worn by all people working or entering certain shop areas due to the frequency of eye injuries experienced in such locations. Designation of such areas is a function of line organization. The areas are to be indicated by signs designed for this purpose which read "DANGER, Do Not Enter Without Wearing Goggles." These signs are expected to be available from the storerooms about April 1.

It was announced that the functions previously carried out by the Safety Department in fitting safety glasses and giving Ortho-Rater eye examinations would henceforth be handled by the Medical Department. This change became effective Monday, March 22. Supervisors having employees needing eye examinations, adjustments, issuance or replacement of safety glasses should contact the Medical Department instead of the Safety Department. It was suggested, and Mr. Wolf agreed to devise a practical method for furnishing adjustment service of glasses at various locations in the Plant convenient for the employees. Similarly, it was pointed out that the centralizing of this function in the Medical Department should speed up the process of obtaining prescription glasses for employees.

Write memo to SPP-2
Radium Source Procedure--The Committee reviewed and approved the following procedure for handling of radium sources in the Plant:


1. The using department or section is responsible for both accountability and safety concerning this material.
2. The Property Department keeps records on sources the same as on any other B property, and movement of sources is reported to the Property Department on regular property transfers in the same manner as other B property.
3. The Radiation Hazards Department provides the following types of auditing service:
 - a. Receiving inspection at the request of the Receiving Department.
 - b. Routine auditing of the condition and care of sources.
 - c. Shipping inspection at the request of the Shipping Department.
4. The laboratory furnishes satisfactory source containers and emergency assistance on request.

Dr. Beck announced that the Laboratory now has isotopic standards which may be used to calibrate and improve the reliability of instruments, and also to accurately measure the strength of radium sources used in the Plant.

Plant Fire Whistle--"All Clear" Signal--The Committee approved a recommendation that an "all clear" signal consisting of two quick blasts be sounded on the Plant fire whistle following a fire alarm to indicate that the emergency no longer existed and/or that the fire apparatus was back in the station ready for the next alarm.

Test Alarm--The test alarm will henceforth be sounded at approximately 12:00 Noon, except on days when a fire alarm occurs and is sounded on the whistle between 8:00 a.m. and Noon, in which case the test alarm will be omitted for that day.

Company-Union Safety Committee Meeting--Mr. Dunlap reviewed the minutes of the Company-Union Safety Meeting held March 8, 1948.


A. P. Dunlap, Superintendent
Safety and Inspection Division

WLR:ec

cc: Mr. C. E. Center
Mr. J. C. Robinson (2)

INTER-COMPANY CORRESPONDENCE

Post Office Box P
OAK RIDGE, TENN.

(INSERT
NAME) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION _____

TO **Mr. W. L. Richardson**
LOCATION _____

DATE **March 22, 1948**
ANSWERING LETTER DATE _____

ATTENTION
COPY TO _____

SUBJECT **Items Pending From Central
Safety Committee Meeting in
February**

The following is the status of those items which were referred to in the February Central Safety Committee Meeting as indicated:

1. Over-the-shoe rubbers - Total of 355 pairs on hand;
2. Commuters boots to be used for spill clean-up and maintenance work in connection therewith - 252 pair on order - 50% promised by April 16th and 50% May 1st
3. Gloves - adequate stock on hand in all types with the exception as noted below; presently our review of the stores catalog should result in the elimination of other than those standard types approved at previous Central Safety Committee Meetings.

Exception - Pigskin or equivalent gloves -

384 pair of goatskin gloves received and on plant; 384 additional pair on order, delivery expected in two weeks.

Sample types of gloves on hand for review by various Division Superintendents to ascertain which types should be standardized. The goatskin type presently on hand and on order cost \$1.34 vs sample types which list from \$1.98 to \$3.00 per pair.

In addition to the above items, you might be interested to know that we have received 600 pair of surgeon type caps and will have completed modification of the arc-welders fresh air supplied type hoods by March 23rd for use on the converter change job.

INTER-COMPANY CORRESPONDENCE

COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION _____

Post Office Box P
OAK RIDGE, TENN.

TO
LOCATION

ATTENTION
COPY TO

Mr. A. F. Beeher
K-1034

DATE **March 15, 1948**

ANSWERING LETTER DATE

SUBJECT **Distribution of
Safety Literature**

At your request the following program for distribution of safety literature has been prepared for possible presentation to the March Meeting of the Central Safety Committee.

K-25 Safe Practice Manual

This manual will consist of several sections.

- A. Hazardous Chemicals Section. Each chemical will be described as follows:

Chemical Properties of Material
Toxicity and Physiological Effects
First Aid
Protective Equipment
Handling and Storage
Permissible Containers and Shipping Regulations
Miscellaneous Precautions
References

- B. A Safety Equipment Section will be used to describe the protective equipment used at the K-25 Plant. Each item will be described as follows:

Description of Equipment
Use and Care of Equipment
Limitations of Equipment
Location of Equipment
References

- C. A Mechanical Section will be used to cover the following topics:

Precautions to be observed in General Maintenance, Construction,
and Demolition
Motor Vehicle Operation
Ventilation Requirements
Guarding Machinery
Additional topics desired by supervision.

Mr. A. F. Beecher
Subject: Distribution of Safety Literature

- 2 -

March 15, 1948

It would be very desirable to include Sections on Fire and Explosion Control, Electrical Hazards, Equipment Test and Inspection Practices, and Radiation Hazards. This manual would thus be a product of the joint efforts of all groups of the Safety and Inspection Division.

Distribution of these manuals should be made to all supervisors of Department Head level and others designated by Division Superintendents. Manuals will be distributed and maintained by the Standard Reference Information Section of the Safety and Inspection Division. The material will be prepared by the Safety Department and reviewed by Divisions concerned.

The function of this manual is to provide reference information only so that supervision may more efficiently perform its duties with less direct assistance of the Safety Department. However, the manual is in no way intended to be an operating manual. The need for wide distribution of this material is evidenced by incidents such as the recent radium spill and nitric acid fume exposures. While some of the material will not apply to all Sections of the Plant, it is believed that all supervisors will benefit by receiving this information as they will be made aware of hazards which their personnel may be exposed to in different parts of the Plant.

Safety Meeting Material

This material will consist of leaflet bulletins, charts and safety instruction cards distributed to all employees. The function of this material is to educate and develop in all employees a safety consciousness. Here also, no attempt will be made to write operating instructions. The material will be reviewed by the Safety Department in conjunction with the Division concerned before distribution.

CEN:mrh

C. E. Newlon
C. E. Newlon
Safety and Inspection Division

file

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 Plant
Oak Ridge, Tennessee

CENTRAL SAFETY COMMITTEE MEETING MINUTES

February 24, 1948

Attendance:

Mr. W. B. Humes	Mr. H. R. House
Mr. S. C. Barnett	Dr. F. W. Hurd
Mr. A. P. Huber	Mr. M. F. McDermott
Mr. C. A. Babcock	Mr. F. R. McQuilkin
Dr. C. K. Beck	Mr. W. L. Richardson
Mr. S. Cromer	Mr. D. E. Riley, Jr.
Mr. A. P. Dunlap	Mr. B. Speyers
Mr. J. A. Elkins	Mr. R. R. Wolf
Mr. A. A. Foreman	

The meeting was called to order at 10:00 a.m., by W. B. Humes, Chairman. The minutes of the January meeting were approved, but some of the members mentioned not receiving copies of the minutes. The Safety Department will furnish copies to those requesting same.

Old Business

Safety Shoes--Mr. Dunlap reviewed the Y-12 policy on the sale and use of safety shoes which is the same as that for the K-25 Plant, pointing out that for the present no particular attempt will be made to standardize the types of shoes made available to employees. Dr. Hurd asked for information regarding administration of the present policy of giving away shoes for protection against radiation hazards. At present only the Process Division has established a definite authorization procedure. Designated personnel review requests for shoes for employees and authorize same when an employee is required to work in an area contaminated with alpha emitters. Employees working in areas where potential or minor exposures to alpha emitters exist are encouraged to buy and wear safety shoes so that in the event their shoes become contaminated, the Company can furnish another pair in exchange. The Safety Department added that on the basis of present experience, it appears that in areas of light or intermittent exposure low rubbers may afford adequate protection; and in the event these are inadequate, the employee should be given rubber commuter boots which are similar to overshoes, but without buckles, or if necessary rubber knee boots. The Safety Department has secured a few samples of canvas booties used at Hanford which are made large enough to fit most shoes and are held on at the ankle by means of a rubber band. Tests are being run to see whether or not these can be adapted to our needs economically. The following may be used by supervision as a guide: For light or intermittent exposure--safety shoes and/or low rubbers; for clean up after medium to heavy exposure; such as, clean up after spills, etc.,--commuter boots or knee boots. Supervision should control entry to such areas and arrange to have a few pairs of rubbers, etc., for loan to occasional visitors requiring entry. Arrangements for disposal or storage of contaminated items pending decontamination should also be made.

Order Boots

Central Safety Committee Meeting Minutes

Page Two

February 24, 1948

New Business

Laboratory Procedures--Dr. Hurd stated that several procedures are being prepared involving the handling of radioactive materials and requested the Safety Department's assistance in reviewing these from a safety standpoint.

Gloves--The difficulty in obtaining adequate stocks of gloves to supply the plant needs was brought up and the Safety Department was requested to increase the stocks of gloves carried in the Tool Crib and Stockrooms in accordance with the increased emphasis being placed on the use of gloves to prevent hand and finger injuries. *Chuck gloves*

Standard Practice Procedure on Protective Clothing--Mr. Humes requested a revision of this standard practice procedure in accordance with the Safety Department's recommendations for review by the Plant Policy and Economy Committee. *Submit proposal to W.R.*

Standard Practice Procedures on Absences Following Occupational Injuries--Mr. Humes requested revision of these standard practice procedures in accordance with the Safety Department's recommendations for review by the Plant Policy and Economy Committee. *W.R.*

ECC Safety Award--Mr. Dunlap reviewed the proposed wording to be placed on this plaque. It was decided that the plaque would be located in the K-1001 Building at the main entrance, and that pictures of it would be made available for posting on bulletin boards throughout the plant, with an announcement of same to be made in the Carbide Courier. *write article*

Recognition of Good Divisional Safety Records--It was suggested that the Plant Superintendent send out a letter of commendation to divisions establishing good safety records which would serve to impress employees with the fact that their efforts in working safely were appreciated. *W.R.*

Report on Injury Analysis and Record for January--The chairman asked Mr. Dunlap to review this report for the benefit of the group. Mr. Dunlap reviewed the introduction to the report, explaining the terms to be used in future accident reporting. In this connection, Mr. Huber called attention to a report which he had received from the Safety Department where the injury was termed "Exposure to C-616." This terminology was incorrect and the Safety Department and the Medical Department will use a positive statement to clearly set forth whether or not there was an injury. It was pointed out that where employees were sent to the Dispensary for supervisory checks and accident reports were requested from supervision, such instances and reports would not be regarded as injuries unless in the opinion of the Medical Department there actually was an injury.

Mr. Wolf stated that the report was excellent, but expressed a need for receiving it earlier in the month for use in safety meetings in his division. He suggested adding another column on Page 7 to show attendance at safety

meetings with respect to the number of employees in the division. The Safety Department pointed out that there was a lack of consistency in the method of writing safety meeting minutes and that in order to accomplish this, it will be necessary for supervision to list the names of those attending all meetings as well as those who are absent. The Safety Department is to prepare a bulletin as a guide to supervision for the preparation of safety meeting minutes which would encompass the above and provide for an outline of the Safety topic presented by the supervisor at the meeting, together with the questions raised by the employees and the answers given by the supervisor, the safety suggestions that were made and the disposition or action taken by the supervisor.

The major injuries occurring during January were reviewed. Mr. Humes mentioned that supervision should be especially watchful for a lessening of safety morale wherein an outstanding departmental accident record has been broken.

In discussing the assignment of responsibility for accidents, it was agreed that supervision should very carefully consider this at the time of the accident investigation and attempt to evaluate the facts fairly.

Mr. McDermott stated that there is a need for the Safety Department's carefully wording accident reports that receive general distribution to avoid the necessity of security classification wherever possible.

Mr. Humes asked the group to review the balance of the report and offer comments at the next meeting.

Company-Union Safety Meeting--Mr. Dunlap reviewed the recent Company-Union Safety Meeting and asked the division superintendents to be prepared to furnish the Safety Department with an outline of how they presently handle safety suggestions from employees so that an over-all determination can be made of the best methods for the plant to follow.

Mention was made that the safety meeting rooms in the plant are generally unsatisfactory. The group was of the opinion that this is a divisional problem and should be handled as such.

Crowded plant shuttle busses was another matter brought up by the Union and the group felt that this had been taken care of by dispatching the busses which were loaded first rather than in accordance with the way they were parked, thus avoiding rush to get on first bus.

The Union has requested information in the form of a bulletin for employees on the hazards involved in the use of carbon tetrachloride, and it was felt that this should be handled by line organization.

The Union has requested consideration of furnishing jackets or coats to be worn over coveralls to avoid chills when coming out of hot cell enclosures into the withdrawal alleys.

Central Safety Committee Meeting Minutes
Page Four
February 24, 1948

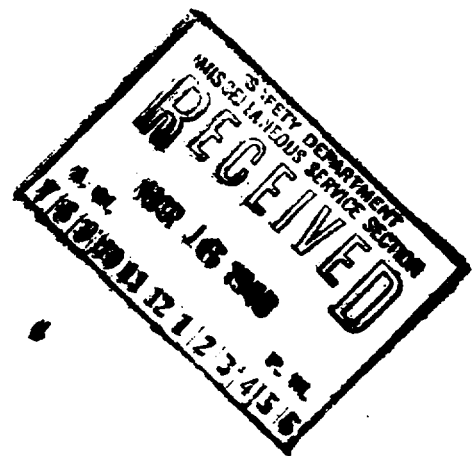
The mandatory wearing of safety goggles was discussed, and it was decided that this is a departmental problem and should be handled on the basis of eye injury experience for the area involved. Mr. Speyers requested that the Safety Department furnish a comparison of eye injuries occurring in shop areas versus the rest of the plant for use at his staff meeting.

A. P. Dunlap

A. P. Dunlap, Superintendent
Safety and Inspection Division

WLR:eo

cc: Mr. C. E. Center



INTER-COMPANY CORRESPONDENCE

Post Office Box P
OAK RIDGE, TENN.INSERT) COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION _____
(NAME)TO Mr. A. F. Becher
LOCATION K-1034

DATE February 16, 1948

ATTENTION
COPY TO File (3).

ANSWERING LETTER DATE

SUBJECT Suggested Topic for
Central Safety Meeting

It is recommended that the Central Safety Committee review the over-all policy on eye protection. In particular, emphasis should be placed on establishing mandatory eye protection areas where corrosive chemicals are handled at above atmospheric pressures or in open vessels. Data on past accidents and locations are available if desired.

C. E. Newlon
C. E. Newlon
Safety and Inspection Division

CEN:msm

C E Newlon:

Suggest we handle such proposals by outlining the areas involved & prepare a brief summary of our experience to date in regard to eye injuries involving chemical operations -

al - 5 minutes attB
up letter for central safety

cc N

2-23-48

file

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 Plant
Oak Ridge, Tennessee

CENTRAL SAFETY COMMITTEE MEETING MINUTES

January 20, 1948

Attendances:	Mr. W. B. Humes	Mr. C. A. Babcock
	Mr. A. P. Dunlap	Mr. J. J. Fritz
	Mr. T. E. Lane	Mr. R. M. Batch
	Mr. H. R. House	Dr. F. W. Hurd
	Mr. M. F. McDermott	Mr. D. H. Riley, Jr.
	Mr. A. P. Huber	Mr. B. Speyers
	Mr. G. S. Hensley	Mr. W. L. Richardson
	Mr. J. A. Elkins	Mr. J. C. Robinson, AEC
	Mr. S. Cromer	

The meeting was called to order at 10:05 A.M. by W. B. Humes, Chairman.

The minutes of the December meeting were approved after the following corrections were made:

Policy on Sale of Safety Shoes -- Add the following: "Policy on this matter at K-25 to be coordinated with Y-12 by A. P. Dunlap."

Policy on Pay for Dispensary Visits After Normal Work Day -- Add the following: "The Medical Department will arrange transportation home for employees held at the Dispensary beyond the end of their shift."

Old Business

Recommended Type of Protective Shoes for Radiation Hazard (Alpha Emitters).
Oxford versus 6" Work Shoe -- Mr. Dunlap reviewed survey data which indicated that in many instances the tops of shoes were contaminated significantly, but not to the same extent as the bottom of the shoe soles. In a few instances, socks were also found to be contaminated but not excessively. The pros and cons of oxford shoes versus 6" work shoes versus rubber footwear were discussed. It was the consensus that the 6" work shoe afforded the most desirable overall protection. The Safety Department was requested to review the Y-12 and X-10 Plants' experience, and make suitable recommendations, in two (2) weeks, and to also consider the advisability of furnishing socks to supplement protection afforded with shoes.

K-1037 Emergency Exits -- Mr. Dunlap reported in response to question recently raised in Superintendents' Meeting that this operation is not considered a "high hazard occupancy" at the present time, and exits provided appear adequate.

Review of December Accident Experience -- Mr. Humes reviewed the Plant Frequency and Severity rates, which are as follows:

Carbide and Carbon Chemicals Corporation Operating
Contractor for the U.S. Atomic Energy Commission.

<u>K-25 Plant</u>	<u>1944</u>	<u>1945</u>	<u>1946</u>	<u>1947</u>
Frequency Rate	9.44	8.18	4.05	2.68*
Severity Rate	0.36	0.96	0.49	0.69

* One potential case not included.

There was a total of thirty-one (31) disabling accidents for the year of 1947. The accumulated experience by Divisions was:

General Maintenance	15
Electrical Maintenance	0
Plant Engineering	0
Safety and Inspection	0
Process	6
Laboratory - Works	1
Laboratory - Research	0
Power	0
Engineering Development	1
Manufacturing Office - Material	4
Manufacturing Office - Accounting	2
Plant Protection	2
Industrial Relations	0
Total	31

Mr. Speyers reviewed the three (3) disabling accidents which occurred in the General Maintenance Division in December. (Reference Safety Department Monthly Report). It was recommended by Mr. Humes that all personnel present during the opening of closed systems in which process materials are handled, wear gas masks until conditions prove the masks are not needed.

Absences Following Occupational Injury -- Mr. Speyers raised a question on the procedure which is to be followed by supervision and the Insurance, Medical and Safety Departments relative to determining the cause of an employee's absence following a plant injury. During discussion, certain deficiencies in present procedures were pointed out, and a subcommittee consisting of Messrs. Lane, Dunlap and Speyers was appointed to settle specific differences, and to recommend any required changes in present practice.

Plant Electrical Hazards -- A demonstration and discussion of some of the plant electrical hazards followed, based on the attached Safety and Inspection Division Memorandum outlining types of receptacles, plugs and cords in current use. Samples of some of the cords used in the Plant were passed around for examination. It was decided that use of the 110 volt, 15 amp. Hubbel Twist Lock Plugs and Receptacles be immediately discontinued due to the relative ease with which this three-prong plug may be inserted in the .25 amp. receptacle in any of three (3) positions, one of which energizes the case of the tool, making it possible for the user to be electrocuted should he contact a grounded surface.

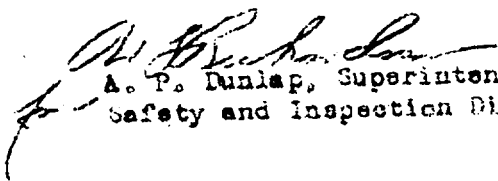
Central Safety Committee Meeting Minutes
Page Three
January 20, 1948

Inspection Tags -- The Safety and Inspection Division was requested to prepare a bulletin explaining the use and meaning of tags presently used for the purpose of acquainting plant personnel therewith.

New Business

Safety and Inspection Division Organization -- The attached organization chart for the Safety and Inspection Division was distributed to show functions and persons responsible therefor.

UCC Safety Award -- Mr. Humes announced that the Plant was eligible for the UCC Safety Award based on having operated for the period beginning February 21, 1947, and ending April 5, 1947, during which 1,567,172 consecutive labor hours were accumulated. This award consists of a Bronze Plaque, and is given to those plants which operate for one year without a disabling accident or for a period exceeding 1,500,000 hours.


A. P. Dunlap, Superintendent
Safety and Inspection Division

APD:WLR:nh

Attachments

cc: Dr. G. T. Felbeck
Mr. H. D. Kinsey
Mr. C. E. Center
Mr. C. M. Rucker

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 DIVISION
Post Office Box P
Oak Ridge, Tennessee

SAFETY AND INSPECTION DIVISION

M E M O R A N D U M

PLANT ELECTRICAL HAZARDS

January 19, 1947

DISTRIBUTION

W. B. Humes	C. A. Babcock
S. C. Barnett	S. Cromer
T. E. Lane	F. W. Hurd
O. Rinehart	J. J. Fritz
M. F. McDermott	D. H. Riley
C. K. Beck	A. P. Huber
H. R. House	A. P. Dunlap
B. Speyers	W. L. Richardson
R. M. Batch	J. C. Robinson

Shift Superintendent

CARBIDE AND CARBON CHEMICALS CORPORATION
K-25 DIVISION
Post Office Box P
Oak Ridge, Tennessee

A B S T R A C T

PLANT ELECTRICAL HAZARDS
January 19, 1947

This report is divided into four (4) parts:

Part I presents the physiological aspects of electrical shock and the general accident experience throughout all industries, as well as specific reference to a few accidents in this Plant.

Part II presents a picture of the electric wiring, receptacles, and grounding in its present condition, and the existing personnel and property hazards and recommendations for correction.

Part III is a review of the corded electrical equipment used in the Plant and a discussion of the hazards incident by its use with recommendations.

Part IV is a review of electric circuit identification and protective devices as exist in the Plant at the present time. Reference is made to specific accidents and recommendations for eliminating the hazards.

/vhp

PART I

HAZARDS ATTENDANT TO THE OPERATION AND USE OF ELECTRICAL UTILIZATION EQUIPMENT

Each year in this country there are about 400 deaths resulting from lightning, and approximately 1,000 fatalities occur as a result of industrial and home electrical accidents. The majority of fatal accidents involving electrical shock today are due to exposure to low voltage AC, rather than high voltage. A survey of accidents involving electrical shock in one area over a two year period showed that 60% of all fatalities resulted from exposures to 115 Volts and 40% were traceable to currents of 2300 Volts and other miscellaneous "high-tension" currents. Moreover, this is not due to the greater accessibility of low voltage lines, but rather to the physiological effects of electrical current.

Procedures for minimizing the exposure of workmen to high voltage systems have been developed which vary from elaborate "hold off" or "work permit" systems to ordinary padlocks, which are furnished employees to "lock out" switches, etc. Due to the fairly close control which can be exercised over the relatively few people involved, these types of systems have proven highly successful over a long period of time. However, the problem of furnishing a similar means of protection to everyone who might have access to low voltage electrical equipment is not so easily resolved. Educational means to provide the individual with the fundamental knowledge required to recognize hazards attendant to the wide spread use of low voltage electrical power in the home, factory, etc., and to impress the trained workman with a proper respect for these low voltage systems is by far the most important phase of the program. The mechanical aspects of the program for providing protection of life and property have been covered fairly completely in the national codes which attempt to minimize exposure from electrical shock and fires.

In any specific application or use the details of the electrical circuit are highly significant, the presence of fuses, limiting tubes, thermal and interrupting devices, also switches, meters, position and size of capacitors and inductances, insulation and shielding, nature and position of ground contacts, and proximity to adjacent circuits are all factors to consider. Methods of discharging or grounding condensers and inductances are particularly tricky. Recent engineering practice which provides that one side of low voltage circuits be grounded has been developed in accordance with the experience within the industry to avoid the hazard of a floating ungrounded low voltage side of a distribution transformer to which high voltage may "leak" as a result of a transformer breakdown. Contact with the ungrounded side of such a low voltage circuit will result in electrical shock if another part of the body is grounded. Unfortunately, grounding contacts are usually readily accessible in the form of reinforced concrete floors, water pipes, steam lines, radiators, conduits, sinks, steel frames of buildings, etc., and the earth itself.

Accidental electrical shock arises from being struck by lightning, or as a result of contact with artificially generated electrical power. For electrical shock to occur, the body of the individual must form a part of the electrical circuit, usually as an additional branch. In addition, current must pass through some portion

of the body since simply raising the body potential will not cause electrical shock. The amount and type of the current and the path it will follow through the body will determine the severity of the shock incurred. (See Safety Bulletin No. 28 - Effects of Electrical Shock.)

The amount of current that will flow through the body depends on many variables, but is related to the applied voltage by the familiar Ohm's Law relationship, i.e.; the current is equal to the voltage divided by the resistance. Suffice it to say that, in general, sufficiently good ground contact sources are available in most of the plant buildings due to the extensive ground grid system which has multitudinous interconnections with building columns, trusses, pipe lines, etc., and the use of portable electrical tools and other corded equipment provides an excellent source of potential in the event of insulation failure. Providing a positive means of grounding the noncurrent, carrying parts of such apparatus, will allow enough current to flow in the event of insulation failure to interrupt fuses and therman devices which would then safely disconnect defective apparatus from the source of supply. Contact with current carrying parts will be minimized by the use of approved types of equipment installed in conformance with nationally recognized codes, which also afford adequate protection from fire, explosion, etc.

The Plant accident experience reveals two (2) cases of electrical shock resulting from improper, or the lack of equipment grounding facilities, both of which could have had serious results. One (1) fatality was experienced at the Y-12 Plant due to the above mentioned causes, and many other minor accidents have resulted in shock or burns associated with the use of corded equipment. Lack of equipment identification also presents a serious hazard. At the K-25 Plant one (1) fatality was experienced, and many cases of accident or near accident have been experienced due to inadequate identification of circuits with their points of disconnect.

The above mentioned accident experience at the K-25 Plant does not, by any means, indicate the complete Plant experience, but is intended merely to confirm the experience of industry as a whole. These danger signals should serve to remind us that a serious problem exists.

PART II

WIRING, GROUNDING, AND RECEPTACLES

1. Power House Area:

All permanent buildings in this general area have the electric wiring installed in rigid conduit, adequately grounded. The receptacles are the Hubbell Twist Lock, using three-pole grounded type, except in the stores, offices, etc. where the two-pole type are installed.

It is possible for an employee to receive a serious electrical shock if the frame or case of a machine became energized and then grounded by the person because the person is usually grounded in these areas.

It is recommended that all two-pole receptacles be replaced with the 25 Ampere grounded three-pole type.

2. Process Area:

All manufacturing and auxiliary buildings in this area are, for the most part, wired in conduit, using the Crouse-Hinds type AP #AP3232 receptacle which is probably the best safe type in the Plant. The fish bowl offices in the process building and some other scattered locations are wired in Romex, terminating in two-pole type receptacles. Because of space limitations, 15 Ampere Hubbell Twist Lock receptacles were installed on control boards to connect electrically powered instruments.

Because of the amount of exposed structural steel and conductive floors, it is possible for a person to receive an electrical shock from a defective electrical machine.

It is recommended that all two-pole receptacles be replaced with three-pole grounded type. Consideration should also be given to replacing the Romex with rigid conduit.

If not practical to replace the 15 Ampere three-pole on the instrument panels, then it is recommended that strict control be exercised in their use.

3. North Area (1300 and 1400 Series):

All buildings in this general area were wired in conduit which is bonded to the building steel, which, in turn, is bonded to the ground grid. Original receptacles were Russell & Stowe, which are for light duty, and the Crouse-Hinds arcrite type, which is for power outlets.

About two and one-half years ago when rearrangement to K-1401 began it was impossible to get delivery on Russell & Stowe in quantities to meet requirements, so several other brands were installed, even to the standard two-pole house type.

Similar variations also exist in some of the other buildings in this area, though to a lesser extent.

The many different types of receptacles require the use of numerous adapter cords which give rise to hazards, as well as require a large inventory. This condition led to one near fatal accident, (I.T. Hilby) since it is possible to connect the wrong size plug to the receptacle in any position.

Hubbel Twist Lock receptacles, rated at 25 Ampere, are installed throughout the Area. Also installed in parts of K-1401, Central Control Rooms in the Process Area, and K-1024 (Instrument Building) are Hubbel Receptacles rated at 15 Amperes. Both of these receptacles are for three-prong plugs (one prong for ground circuit). It is not possible to use the 25 Ampere plug on the 15 Ampere receptacle due to a lug on the grounded prong which fits into a slot in the 25 Ampere receptacle. The 15 Ampere plug has no lug on the ground prong, therefore it is possible to insert it in any position of the 25 Ampere receptacle, making it possible to energize the case of any piece of equipment having this small plug. There is nothing wrong with either plug or receptacle if they are properly used. Other companies with whom this problem has been discussed have ruled out the 15 Ampere plug and receptacle. However, a different situation exists here from these other companies because, here, the small receptacle is used on control boards for instruments in our Barrier Research Laboratories, Process Central Control Rooms, and Instrument Building where space is a factor.

To eliminate this hazard, it is recommended that a standard three-pole type grounded receptacle be used throughout the area. In doing this, the Hubbel 15 Ampere Twist Lock type should be removed entirely and placed in Power House Stores, which would then be the only area using the Hubbel.

4. Laboratories:

These building and the laundry are wired in conduit with some receptacles of the grounded three-pole type, but most of them are the ungrounded two-pole type (1,509, total).

It is recommended that the three-pole grounded type receptacle be used throughout these buildings on the basis that personnel here are either working on grounded floors, or in contact with grounded equipment and subject to attendant hazards

5. Garage Area:

Most of the wiring in these buildings is in Romex and connected to grounded outlets. If these buildings are to be retained in their present service all wiring and receptacles should be revised and made safer than existing.

6. Other Buildings:

In this group of buildings is included all buildings not previously listed housing administrative workers or service facilities.

In almost every case the wiring is Romex cable beyond the entrance and feeder switches. There are a few places where conduit and three-pole receptacles are used, such as recently installed in the Print Shop in K-1001.

The hazards which exist in these buildings may be grouped as follows:

- (a) Electric shock due to a person touching the energized case of a fan, lamp, or office machine while in contact with a water pipe or radiator.
- (b) Similar contact with defective machine or cord, but obtaining the ground because of exposed structural steel and/or wet concrete floor.
- (c) Using electrical tools without proper grounding, and the person supplying the ground through pipes, floor, or steel framing.

There are three alternatives for correcting the electrical wiring hazards in these buildings:

- (a) Completely rewire the building with rigid conduit and grounded receptacles.
- (b) Pull or install ground wire and change receptacles to the existing wiring.
- (c) Install ground wires and grounded receptacles in positions of the buildings where the most office machinery is located, or where floor and structural conditions contribute to the hazard.

Either of the first two alternatives would provide the greatest protection. However, in weighing the risk and expense, such a program might not be warranted. The third possibility would remove the hazards which induce continuous exposure. Routine inspection and care by the user should reduce the risk in other locations by disclosure of defects and the subsequent repair. The burden for preventing accidents from ungrounded receptacles by maintenance men would have to be placed on the employee and his foreman.

PART III

CORDS AND CORDED ELECTRICAL EQUIPMENT

The Plant is supplied with a wide variety of cords and corded equipment of all ages and conditions: some used material received from surplus elsewhere, some new, some fabricated from questionable quality material, and much of it worn. Because of the many types of receptacles throughout the Plant it has been necessary to fabricate adapter cords for each type application. No doubt, some cords were made up and plugs put on corded machines by unauthorized persons which has also contributed to hazardous equipment being used. Furthermore, no one will challenge the statement that wartime material and fabrications were below par.

Two conductor extension cords are used in all areas except the Power House Area, where the three-wire grounded cords are used with grounded lamp guards operating at 32 Volts from portable transformers. These cords are used inside boilers and other vessels, where the employee is between the light and ground every time he touches the fixture. Similar hazardous conditions exist in cell work in the Process Area, K-1501 (Heating Plant) and K-1401 Area where men must work inside vessels.

About 80% of the two-wire cords carry alligator ground clips for grounding the tool. The user, in most cases, is not qualified to judge the certainty of the ground thus made. Very few realize the effect of paint, oil, rust, etc. on the grounding obtained. The user also has the option of not even connecting the alligator clip. Inspections indicate that some of these have been torn off, accidentally, or otherwise.

Only very broad limitations have been established relative to material specifications from which cords have been fabricated. Available material has, for the most part, been the determining factor. The last scheduled inspection of cords issued from tool cribs on temporary loan basis showed that 2 $\frac{1}{2}$ % were unsafe for use. It may be assumed that a greater percentage of the cords charged out permanently are in an unsafe condition.

Corded equipment, such as office fans, calculators, tools, desk lights, etc. have been tested in a few areas of the Plant. Of the 1,724 items inspected in laboratories, 398, or 23%, were unsafe. Twelve percent (12%) of the tools (844) issued from the tool cribs were rejected at the last inspection. From inspection experience to date, 25% of electric fans are defective, indicating that a shock and fire hazard exist when grounded contacts to the fan are made. To date, only minor injuries and fires have resulted from such conditions.

PART IV

CIRCUIT IDENTIFICATION AND PROTECTIVE DEVICES

Following the accidental death of _____ in August, 1945, recommendations were made by a board, appointed by the District Engineer to investigate the accident, and issued to L. G. Bamer on September 1, 1945 by H. D. Kinsey.

Recommendation #8 was as follows: "Provide for positive identification of electrical feeders, sub-feeders, and branch circuits as related to connected equipment."

Recommendation #10 was as follows: "It is further recommended that the entire Process Area electrical installations be reviewed for the purpose of changing and/or modification of existing installations to insure accordance with established safe electrical construction and practices in order to eliminate existing personnel and potential fire hazards."

These recommendations have been followed out to an undetermined degree, inasmuch as no complete circuit survey has recently been made. There are instances where electric arktite outlets are protected only by high-setting breakers, making it possible to connect portable equipment without proper fuse protection. An example of such a hazard was the accident incurred by _____ when he received hand burns while making a cord connection for a welding machine. Ample fuse protection would have prevented this accident.

Recently, a fire occurred in K-413 in a lighting panel, and it was necessary for the electrician to operate three (3) breakers before he was certain that the current was cut off. It was later found that a part of the lighting in this building was protected by a 200 Ampere breaker. Similar conditions may exist elsewhere and create fire and/or personnel safety hazards.

Although there has not recently been a complete circuit inspection report on the electrical installations in the Power House Area, general observations indicate that conditions can be considered satisfactory.

Electrical installations in the North Area, which have been made recently, have been properly identified and adequately protected by fuses or breakers. Without making a circuit inspection of all other circuits in these buildings, it is impossible to state the completeness of identification and protection.

In March, 1947 a request was made for an electrical inspection of all circuits and wiring conditions in all temporary and frame buildings throughout the Plant. At the present time, this work is 95% complete, and the unsatisfactory conditions found are being corrected.

SUMMARY:

It is planned to:

1. Provide grounding facilities for portable tools and corded equipment in hazardous locations.
2. Reduce the types or makes of receptacles to as few as practical.
3. Eliminate substandard cords and corded equipment by routine inspection.
4. Establish fabrication and material specifications.
5. Extend the circuit identification and inspection program to all plant facilities as a continuing program.
6. Emphasize to Plant personnel the hazards attendant to electrical utilization equipment.

January 19, 1948

JOB NO.

A

B

C

D

R

PLANT SUPERINTENDENT

Center, C. E.

SAFETY AND INSPECTION DIVISION

Dunlap, A. P.

ASS'T DIVISION HEAD

Richardson, W. L.

EQUIPMENT SAFETY &

FIRE CONTROL DEPARTMENT

Clarke, R. B.

PRESSURE EQUIPMENT

Storey, G. S.

ELECTRICAL EQUIPMENT

Robbins, C. E.

CRANE, HOIST & STRUCTURAL

Rutherford, P. T.

FIRE CONTROL

Buokalew, F.

MFG. MACHINERY

Kirstowsky, E. C.

SAFETY DEPARTMENT

Bechor, A. F.

PLANT SAFETY INSPECTION

Northington, J. C.

PERSONNEL PROTECTIVE EQUIP.

Stewart, C. L.

Bull, J. H.

SAFETY TECHNICAL RESEARCH

Newlon, C. E.

INJURY RECORDS

Marguesat, E. P.

DIVISION OFFICE

Carper, H. E.

TYPING POOL - DIV. RECORDS

Green, R. L.

ILLUST.-CHARTS-REPROD.

Phillippi, W. D.

STANDARD REFERENCE INFO.

McKey, E. N.

SAFETY AND INSPECTION DIVISION (CON'T) Dunlap, A. P.

RADIATION HAZARDS

Visner, S.

HEALTH PHYSICS INSP. SECT.

Gritner, C. L.

Clossey, W. J.

HEALTH PHYSICS TECH. SECT.

Selvin, G. J.

CRITICAL MASS SECTION

Hallett, A.

PLANT RECORDS DEPARTMENT

Lowery, R. R.

CLASSIFIED DOC. ACCT.

McMillon, G. E.

PLANT LIBRARIAN

Randall, G. E.

ENGINEERING RECORDS

Myers, L. A.

JOB NO.

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CENTRAL SAFETY COMMITTEE MEETING MINUTES
December 23, 1947

Attendance:	Mr. W. B. Humes	Mr. C. A. Babcock
	Mr. S. C. Barnett	Dr. G. A. Garrett
	Mr. T. E. Lane	Dr. F. W. Hurd
	Mr. O. Rinehart	Mr. J. J. Fritz
	Mr. M. F. McDermott	Mr. D. H. Riley, Jr.
	Dr. C. K. Beck	Mr. A. P. Huber
	Mr. H. R. House	Mr. A. P. Dunlap
	Mr. B. Speyers	Mr. W. L. Richardson
	Mr. G. S. Hensley	Mr. J. C. Robinson
	Mr. R. M. Batch	

The meeting was called to order at 10:00 a.m. by Mr. Humes.

The minutes of the November meeting were reviewed and accepted.

Old Business

Policy on Sale of Safety Shoes--Messrs. Rinehart and Dunlap reported that the Policy and Economy Committee recommended that the present policy of selling safety shoes at cost would be continued; however, shoes required for protection against radiation hazards will be given to employees without cost. In the latter case, the shoes are to be identified with yellow paint on the toe caps and further determination is to be made as to whether the shoes should be of oxford type or high cuts (six inches).

Policy on Pay for Dispensary Visits after Normal Work Day--Mr. Speyers, Chairman of the Committee, appointed to study this matter, advised that the Committee was not ready to report. Mr. Lane pointed out that the Wage and Hour Law does not require that we pay employees for visits after the normal work day. It was decided that the policy would continue as indicated in Standard Practice Procedure 313.4.0 for the present. All supervision are requested to send employees to the Dispensary as soon as possible after an accident, or possible exposure, and especially avoid waiting until the end of the shift to do so. The Medical Department agreed to conduct their treatments and examinations as rapidly as possible to avoid keeping the employees overtime. Mr. Lane pointed out that doctors were on duty in the Dispensary from 7:00 a.m. through 5:30 p.m.

Test and Inspection of Corded Electrical Equipment--Mr. Humes stated that an early meeting in January is planned for discussion of this subject, at which time a demonstration of some cords and plugs used in the Plant would be arranged in an attempt to show the hazards of each. He mentioned that there is some evidence of so-called "twisted-pair" fabric covered wires being used in the Plant on such items as extension lamps. The group recommended that supervision, as well as the Safety and Inspection Division, should note all such items and see that they are removed from service and replaced with cords fabricated in accordance with the Engineering Specifications.

Emergency Safety Equipment Depot, Building K-1005--Announcement was made that this room has now been equipped and a list of the equipment therein was passed

out. (See copy attached.) It was recommended that the plant emergency crews make use of this room occasionally during drills in order to familiarize themselves with the equipment available and its location. Mr. Hensley, Shift Superintendent, agreed to arrange this. Notification that this room is available is to be included in the Plant Emergency Procedure.

Review of November Accident Experience--Mr. Humes reviewed the Divisional Accident Record for November, pointing out the following: Power, Safety and Inspection, Industrial Relations, Laboratory Research, Plant Engineering, and Electrical Maintenance Divisions, have all operated in excess of one year without a disabling accident. Mr. Speyers was asked to review the [redacted] accident wherein the employee was exposed to some sodium fluoride dust, being dumped from a vacuum cleaner by another employee. The Committee recommended that supervision first determine that the contents or internal surfaces of vessels or other containers would not be injurious to employees who might be expected to later handle them or otherwise come in contact. Where it is impossible to make the equipment or contents safe for entry or handling, a work permit should be issued pointing out the precautions to apply in avoiding accidents. Mr. Rinehart was requested to review the [redacted] accident. This employee sustained a fracture of the arm when he fell while walking on loose gravel in the roadway. The Committee agreed that all employees should be cautioned about the hazards of walking over some areas in the Plant which do have large rocks in the walkways or roadways. Every effort will be made to improve these conditions and hazardous conditions of this nature should be brought to the attention of the Planning Department. Mr. McDermott was asked to review the injury suffered by [redacted] fireman, who broke his arm when he fell while carrying a 50' section of 2½" fire hose during a fire fighting drill. Firemen have been reinstructed to carry hose at their sides to avoid tripping over same.

New Business

Review of Protective Equipment (Gloves)--The types of gloves presently stocked in the Plant were reviewed and samples were passed around for examination. It appears that the types of gloves stocked are adequate for Plant needs with the possible exception of a light, tough leather glove which allows sufficient dexterity to manipulate small parts. It was the recommendation of the Committee that: (1) All gloves be stamped, indicating that they are United States Government property. (2) Specifications be written by the Safety Department to facilitate purchase of same. (3) Whenever an additional type of glove is needed, it should be procured in the same manner as other Safety equipment items; that is, the division superintendent who requires same, advises the Safety Department, furnishes the specifications or description of the glove needed and the reasons why it is required. The Safety Department will then review the request, and if in agreement with the need for and the type of equipment required, will place an order for same to be procured and stocked in the Plant. If agreement on the matter is not reached, it is to be referred to the Central Safety Committee for recommendation.

Central Safety Committee Meeting Minutes
Page Three
December 23, 1947

Mr. Dunlap reviewed the minutes of the UCC Safety Meeting held in Chicago, Illinois, October 4 to October 10, 1947. (See copy attached.)

A. P. Dunlap
A. P. Dunlap, Superintendent
Safety and Inspection Division

WLR:eo

Attachments *

cc: Mr. G. T. Felbeck
Mr. H. D. Kinsey
Mr. C. E. Center
Mr. C. N. Rucker

* Attachments concerning Union Carbide Corporation's Chicago, Illinois, Safety Committee mtg. held in 1947 were removed from these minutes; this information is not releasable by L M E S.

A. H. G. Houston
6/21/95

AVAILABLE EMERGENCY SAFETY EQUIPMENT, ROOM SR-1, BUILDING X-1005,
EMERGENCY SAFETY EQUIPMENT DEPOT. (Dec. 22, 1947)

<u>Item No.</u>	<u>Quantity</u>	<u>Equipment</u>
1	5	<u>M.S.A. - "Chemox", Oxygen Breathing Apparatus, each with one canister in carrying case.</u> Use: To be used for respiratory protection during fires; rescue work in tanks, pits or other locations of limited area; or extensive indoor releases of toxic materials, where an oxygen deficiency may exist. Care: Should be inspected once each week and face-piece and tubing flexed to prevent "set". Canister to be checked for unbroken seal. Mask to be disassembled, sterilized and inspected after each period of use and canister replaced. Used canisters (foil seal broken) should be disposed of only by authorized service group.
2	10	<u>M.S.A. - "Chemox", Replacement Canisters.</u>
3	20	<u>M.S.A. - All-Service, Model "S", Gas Masks (with canisters).</u> Use: Respiratory protection during fires and toxic releases (other than C-216 and C-616) where no oxygen deficiency exists. Care: Should be inspected each week in accordance with "Standard Reference Information" No. EF-174, "Field Inspection and care of gas masks - M.S.A. All-Service, Model 'S'."
4	20	<u>M.S.A. - All Service, Model "S", Gas Mask Replacement Canisters.</u> Use: Field replacement during emergency use. Care: To be stored up right with seals intact.
5	1	<u>M.S.A. - Combination Hose Mask (2 man)</u> Care: To be inspected weekly and face pieces and tubes flexed to prevent "set". Use: Respiratory protection where oxygen deficiency exists in tanks, pits, coal bunkers, etc.
6	20	<u>U. S. Army Assault Masks with canisters in sealed bag.</u> Care: To be inspected weekly and face pieces flexed to prevent "set". Use: Respiratory protection in C-616 and C-216 where oxygen deficiency does not exist.

Safety and Inspection Division
December 15, 1947

<u>Item No.</u>	<u>Quantity</u>	<u>Equipment</u>
7	2	<u>Special Welding Masks with U. S. Army Assault Canisters and No. 1 welding plates.</u> Use: Acetylene cutting in toxic atmospheres. Care: Same as U. S. Army Assault Masks.
8	10	<u>Impermeable Suits</u> Use: Skin protection in toxic atmospheres and where contact with contaminated surfaces cannot be avoided. Care: Occasional inspection and flexing to prevent age cracking at folds.
9	20 Pr.	<u>Coveralls, medium and large sizes.</u> Use: Skin and clothing protection, light toxic exposures. Care: Occasional inspection.
10	20 Pr.	<u>Boots, Knee, British type, over-the-shoe, Medium and large sizes.</u> Use: Foot protection, toxic exposures. Care: Occasional inspection and flexing to prevent "set".
11	20	<u>Skull-Guards (Hard Hats) assorted sizes with cap lamp brackets.</u> Use: Head protection during emergency rescue work.
12	20 Prs.	<u>Gloves, Neoprene, 14-inch, heavy-weight, assorted sizes.</u> Use: Hand protection, toxic exposures.
13	20 Prs.	<u>Gloves, long gauntlet, leather palm, cotton back.</u> Use: General hand protection.
14	5 Prs.	<u>Gloves, electricians, rubber, 20,000 volt, Class A.</u> Use: Emergency use by qualified personnel. Care: These gloves to be placed on regular inspection schedule.
15	5 Prs.	<u>Gloves, electricians, leather, cover.</u> Use: Cover for above electrician's rubber gloves.
16	5 Prs.	<u>Gloves, welder's, long gauntlet, all leather, padded back.</u>
17	5 Prs.	<u>Gloves, asbestos, long gauntlet.</u> Use: Hand protection, hot objects during emergency rescue.
18	2	<u>Suits, asbestos, complete with hoods, boots and gloves.</u> Use: Emergency rescue during fire.

<u>Item No.</u>	<u>Quantity</u>	<u>Equipment</u>
19	5	<u>Belts, Safety</u> , each with 100 ft., 3/4 inch manilla rope attached. Use: Emergency rescue work at elevations or in pits, tanks or tunnels.
20	500 ft.	<u>Rope, Manilla - 3/4"</u> Use: Emergency rescue line.
21	200 ft.	<u>Rope, cotton, 1/2"</u> (sash cord) Use: To rope off contaminated or "no admittance" areas.
22	24	<u>Stakes, steel</u> , black and yellow. Use: With above rope.
23	1	<u>Hammer, 4#</u> Use: Drive above stakes.
24	5 prs.	<u>Goggles, acid</u> , Willson 41X. Use: Eye protection, chemical splash and dust.
25	2 prs.	<u>Goggles, Welder's cover</u> , # 4 lens. Use: Acetylene cutting.
26	10	<u>Lanterns, Electric</u> , U.L. approved, Class 1. Complete with batteries. Care: Change batteries each 3 months.
27	10	<u>Batteries, electric lantern</u> . Care: Replacement for above, change for fresh stock each 3 months.
28	5	<u>Lamps, cap, electric</u> with battery and case. Care: Replace batteries each 3 months.
29	5	<u>Batteries, cap lamp type</u> . Care: Replace each 3 months.
30	1	<u>"Hot" Stick, Lineman's</u> . Use: To be used only by qualified personnel. Care: To be inspected on regular schedule.
31	5	<u>Blankets, electricians</u> . Use: To be used only by qualified personnel. Care: To be inspected on regular schedule.
32	1	<u>Air Mover, Lamb, 6 inch</u> . Use: Emergency ventilation.
33	100 ft.	<u>Hose, air</u> with couplings to attach to Lamb Air Mover.

Safety and Inspection Division
December 15, 1947

Emergency entrance to Room SR-1 is by "break glass" lock on door, south hall near main hall, Building K-1005. Door designated by large green light and sign reading "Emergency Safety Equipment Depot."

Service entrance to Room SR-1 is through Room F-8, Building K-1005, by regular key.

Inspection of room and equipment will be made once each week on regular schedule and written report made to Safety and Inspection Division. Special inspections and replacements will be made at this time.

Where possible, equipment will be marked "Emergency Depot" to facilitate return after use.

Equipment shall be withdrawn on the order of the "Plant Emergency Director" by his designated representative who will control the issue and use of this equipment and its return to the Safety Equipment Repair Unit. It will then be serviced and returned to the Emergency Safety Equipment Depot.

Safety and Inspection Division
December 15, 1947